STARSHELL

WINTER 2021 | ISSUE 91

NAVAL ASSOCIATION OF CANADA

The Canadian Surface Combatant

Shipbuilding and the CSC - A NAC Research Report

OP Caribbe: A Look at Canada's Counter-Narcotics Efforts

Starshell

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Cover Image: Render of the proposed Canadian Surface Combatant (Department of National Defence)

From the Editor
Adam Lajeunesse

The Winter of 2021 has been a critical time for the Royal Canadian Navy, with pressure from COVID-19 and the resulting pressure on government finances creating new uncertainty. The Parliamentary Budget Officer released his report on the Canadian Surface Combatant in February 2021 and the Auditor General released her work on the National Shipbuilding Strategy soon thereafter. The future fleet will be an expensive one to be sure and popular attention is now fixed on what the Navy is building and whether there may be cheaper alternatives. To contribute to this discussion, the NAC produced an in-depth research paper on the NSS and the CSC, which is reproduced in full in this edition of *Starshell.*With this work we hope to add some much-needed context and nuance to the ongoing conversation.

I would also direct readers to a fascinating account of Op Caribbe from LCdr Jeffrey Anderson, who commanded HMCS *Summerside* in the RCN's winter deployment to the Caribbean in search of illicit drugs and contraband. We also have the second half of Naval Historian Michael Whitby's conversations with Gordon Stead, an officer aboard HMCS *Iroquois* officer during the Second World War, also, a great history of the Naval Museum of Alberta.

Happy reading to all.

Corrections

There are two corrections to make relating to the October edition of *Starshell*. The article "HMCS *Sackville* and the Battle of the Atlantic" identifies Len Canfield as the author when, in fact, the article was written by Peter Haydon. Here there was a confusion between the author and the individual submitting the piece.

Some carelessness on my part also led to the unauthorized publication of the article "Designs of Distinction, Unofficial Insignia of the RCN, 1910-1948", by Dave Freeman. My apologies to Peter and Dave, both are owed a drink once human interaction is legal once more!

Adam Lajeunesse
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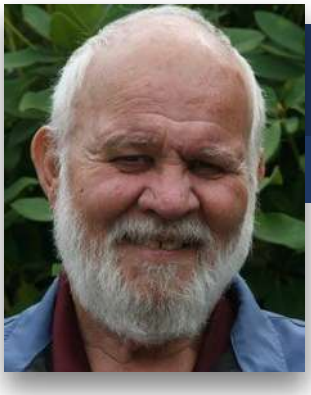


From the Bridge

Bill Conconi, National President

"I want to wish all our members a very healthy and properous New Year. 2020 was certainly an "interesting year" given the impact of COVID on virtually all aspects of our national and branch programs. Most of our activities at the national and branch level were cancelled or deferred – commemorative events for the 75th Anniversary of the end of the Second World War and the Battle of the Atlantic, our major National fundraising Gala Event and an associated conference, and loss of our ability to meet face-to-face. That said, the pandemic forced us to re-think how we do business and has resulted in some very positive initiatives. Through media tools like GoToMeeting and Zoom, what were formerly branch-level speaker events are now National in nature as they can be viewed by all members across the country, Your National Board of Directors, assisted by a team of marketing professionals spent a great deal of effort developing a sponsorship program that did not rely on a single-event fundraising activity, but has been designed to attract a broader array of sponsors to support the NAC, especially our Naval Affairs program, on an annual basis.

So, what lies ahead in 2021? I believe we have started the year with a bang. As most of you know the RCN's future Canadian Surface Combatant (CSC) program has been under fire for the past several months and was subject to a major review by the Parliamentary Budget Office (PBO) and the National Shipbuilding Strategy was the subject of an Office of the Attorney General (OAG) review. In response, a small team associated with your Naval Affairs program set to work to provide an informed and fact-based opinion for the discussion of this critical program for our Navy.

On the 5th of February, we released a discussion paper in anticipation of the expected release of a PBO report on the "build" project of the Canadian Surface Combatants and the difficulty many have in understanding this complex project. Our Director of Naval Affairs, Tim Addison, along with his team: Norm Jolin, and Howie Smith worked for a number of months researching and producing this paper to promote this understanding. The feedback to date has been positive and the paper has been well received by many. An Executive summary is available HERE along with the Full report in English and French. This paper, along with many others are available on our Website. I know this paper is just the start of a long campaign to ensure the success of the CSC program and NSS.

As you all are aware, our primary mandate in NAC is to advocate for and to educate Canadian citizens about our need for a modern, effective and capable navy. The last few years has seen the production of many excellent papers to help us speak to this task. This mission is supported by many volunteer members. To enable and support this we are seeking corporate level sponsorship. While still in the early stages, we are achieving some successes here. Many of the sponsors from our BOA Gala team have now stepped up to help us with our Naval Affairs Program.

While the last few years has seen an expansion of our focus to include this educational role, we continue to maintain our alumnus function. Indeed, this sense of fellowship that grew out of common service to our country is the glue that holds us together. While this camaraderie has been made more difficult in COVID times, our branches still find time for connection using virtual tools. One of our branches, NAC-VI has started a regularly scheduled "Weepers" held on the second and fourth Fridays at 1600 Pacific time. Members now from across the country are joining in to enjoy a "glass" together and share stories. Whether local, or from "away", all are welcome to log in and rekindle some old friendships. These sessions are announced in

advance with a Zoom connection being provided. Join in as you can, all are welcome.

Continued growth in our membership is key to our ability to support our navy. Now would be a great time to approach friends and acquaintances to share our story, introduce them to our website and help them understand the key role our Navy plays in assuring our maritime security and preserving our democracy. Perhaps you might even invite them to join us in this endeavour. A final thought here is that we need to support and build our membership while we support our Navy.

On a final note, and something we should all support, our friends in the Navy League are being challenged right now in the delivery of programs to our Sea Cadets and Navy League Cadets. Summer Camps have been cancelled, holding parade nights for training is, at times, impossible given the loss of access to facilities. In many cases, they are attempting to provide training virtually. This becomes a big problem as key training years are being lost as the cadets "age out" of many opportunities. We only have to look a little into the future to see the potential impact on our navy. As you can, please reach out and offer support. Reflecting on how many of our key naval leaders, at all ranks, had their beginnings in the cadet movement, demonstrates the importance of our support here.

Yours Aye,
Bill Conconi | President NAC

Keep in touch with the NAC

If you are receiving NAC News, but are not a member, please consider joining. Or, keep in touch through social media.

Join the NAC
https://www.navalassoc.ca/membership/
... or contact the Executive Director:
https://www.navalassoc.ca/contact/

View our newest Naval Affairs work
navalassoc.ca/naval-affairs

Archived weekly NAC new links
navalassoc.ca/naval-affairs/nac-news/

Follow us on Twitter
@navalassn

Facebook:https://www.facebook.com/navalassn/

Should you wish to donate or leave a memorial visit:
NAC Endowment Fund

NAC reference to assist veterans and/or seniors is located at Veteran's Corner

HMCS Moncton during Operation Caribbe
(Photo: Canadian Armed Forces)

The Front Desk

"Spring into Action"

David Soule, Executive Director

Well, the days are getting longer, the sun feels warmer and despite what has been for most, a long and lonely winter, we wait to Spring into action. As our President notes, we are moving ahead on the Naval Affairs front in a variety of ways – informing Canadians on the need for a capable and operationally ready Navy that can be deployed anywhere by the Government, whether in support of domestic operations or overseas.

Have you checked out our naval affairs webpages lately? I think you will enjoy poking around what we have to offer while (most of us…) wait for snow to melt and for those outdoor chores to begin. Maybe you will be inspired to contribute to our "product line." In the words of a famous US president "ask not what your NAC can do for you, but what you can do for your NAC."

NAC Sponsorship and Marketing

As noted in the last edition of Starshell, our sponsorship campaign and related efforts to market our brand continue to progress – a branding effort that is largely defined by our naval affairs program. Through the efforts of Barry Walker and Roger Litwiller, we are now very active on a variety of social media platforms, like Twitter and Facebook. This can only increase awareness of the NAC. Our partnership program, while off to a slower start than anticipated, is taking shape. This initiative is one of a number of critical activities to secure long-term funding and a future for NAC. The plan is practical, prudent and within our means. Yet more remains to be done. You, as a NAC member have a part to play in this effort as well - whether this is promoting NAC in order to recruit a new member from your personal network or identifying a potential sponsor we can partner with to help our programs.

A Vision on the Future of Remembrance and Recognition in Canada

Over the next ten years, Veterans Affairs will be establishing program(s) to ensure the stories of, and sacrifice by post-Second World War veterans is recognized by Canadians. Since the Second World War, none of the conflicts or operations that the CAF has been involved have been on the scale of that war in terms of national commitment and forces employed. Far too often many Canadians have no idea of the operations and missions in which their military has been engaged and the impact this has had on many of us, nor do they understand why we were even there. This initiative involves many of our NAC members, the new Veteran as it were, and we do have stories to tell. As some members attending a recent virtual discussion of this initiative noted, there are a number of efforts already underway by some veteran organizations to educate the public, but more needs to be done. Canadians deserve to know what your Navy and those who served have

done post Second World War and today.

Social Media

Over the past several months, some of you have participated in a number of virtual speaker events and related presentations. What were essentially branch events, are now national in nature. In addition, the variety of these virtual events has also expanded with some upcoming events featuring topics on the history of Canadian honours and awards as one example. We have also been working closely with other like-organizations such as RUSI-NS to provide an interesting program, invite one another to participate in one another's events and ensure that we de-conflict the timing of similar events. In the coming weeks Mark Phillips, President of NAC-TO and a National Board member, will be engaging with branch presidents to develop a "simple schedule" so NAC members are aware of local branch events and can virtually participate. In addition, I will be working with our IT literate folks to determine where best to house recordings of these events and related presentations so you, the member, can access them when convenient.

Finally, I suggest that while not all of us are technically savvy, there are many opportunities to build on these programs. For example, a short video tour of the current hull work on HMCS *Sackville* might be well received, as would a walking virtual video tour of the naval museum in Calgary. Just sayin' (not taskin') but the opportunities are there for us to explore.

Administration - Prepare for Some Worthwhile Disruption

Over the coming weeks we will be moving all National membership activity and services to one platform – Wild Apricot - yes there will be some disruption but the effort is worth it. There will be one database where you the members are able to update your information and select the services you want (i.e. yes or no to NAC News, advance notice when Starshell will be published, how much information you share with other NAC members) and we are working to resolve financial issues so you can pay your dues online and the money owed to branches is transferred easily and regularly. As one member said not to long ago, "my son doesn't even know what a cheque looks like." All to say it will take some time, some grief definitely involved, but we are committed and there is no turning back.

NAC AWARDS 2021

Submissions for this year's nominations are due to me by end May. Details on what the requirements are can be found in the NAC admin manual or seek out whoever in your branch is responsible for nominations and make your case.

2021 Endowment Fund Grant Requests

These are due to me at the very latest by 31 May. Details of what is required can be found on our website. And you can always contact the folks on the Endowment Fund Committee as well. Remember, it makes the committee members life easier the earlier we receive these requests.

Note, despite COVID, we will be making a concerted effort on social media to advertise what organizations are awarded the grants so we get some credit for our contributions efforts and also make sure deserving groups can take advantage of the fund. Feel free to send me your pictures, links, etc … for any presentation related for the grant your branch is sponsor for.

AGM 2021

Mark your calendars for a mid-Jun date. As is becoming the norm, this will be held electronically using GoToMeeting. More details to follow in late March. We will have one Board vacancy to fill

this year (for a 3-year term). If you are interested in serving on the National Board, let me know and I will pass your contact information to Mike Hoare, Chairman of the Nomination Committee.

October 2021 – Arctic Workshop/Conference – Halifax

NSNAC is working with the RCN and Dr. Adam Lajeunesse (NAC Naval Affairs Research Coordinator and Professor at StFX) on a two-day workshop/conference in Halifax tentatively scheduled for 19-20 October. At this point in time, given COVID restrictions and concerns, the actual conduct of this event remains tentative (virtual or a limited attendance and virtual combination).The theme will be *Working Together in the Arctic - Options and Opportunities for Canada and Arctic Allies*. More details on this activity will be forthcoming.

Endowment Fund (EF) Committee News

I am pleased to announce that Admiral (Ret'd) John Anderson has agreed to assume the role of Committee Chair. This appointment was recently endorsed by the National BoD.

On behalf of all NAC members, I want to thank, Cdr (Ret'd) Mike Morres for his commitment and dedication as Committee Chair over the past many years. Mike tells me it is time to move on and we certainly wish Mike all the best. Thanks Mike!

Derek Greer is stepping down as the Fund Treasurer. He will remain on the Committee. I want to acknowledge the very professional manner in which he has served the Fund. The fund has grown significantly in size in recent years and Derek has provided very sound advice in regard its financial management as well as devoting a great deal of time to the cause in this role. Thanks Derek!

As a reminder, your Fund serves as a catalyst in supporting suitable branch and community projects. As Mike Morres said in a previous canvassing campaign letter, if every member of NAC gave at least $100 annually, we could maintain the fund at about $1,000,000 – and that could allow us to continue to make annual grants of as much as $50,000. Can we count on your support?

New NAC Children's Book – "An Undersea Adventure"

Our second children's book about service in submarines, "An Undersea Adventure" was published before Christmas. Both books are available for sale in French and English.

If you know of a school or library that could use either or both language versions of these books please let me know. We will be supplying copies to the Family Resource Centres on both coasts and we are working on a plan to donate to local public libraries as well once COVID restrictions are lifted.

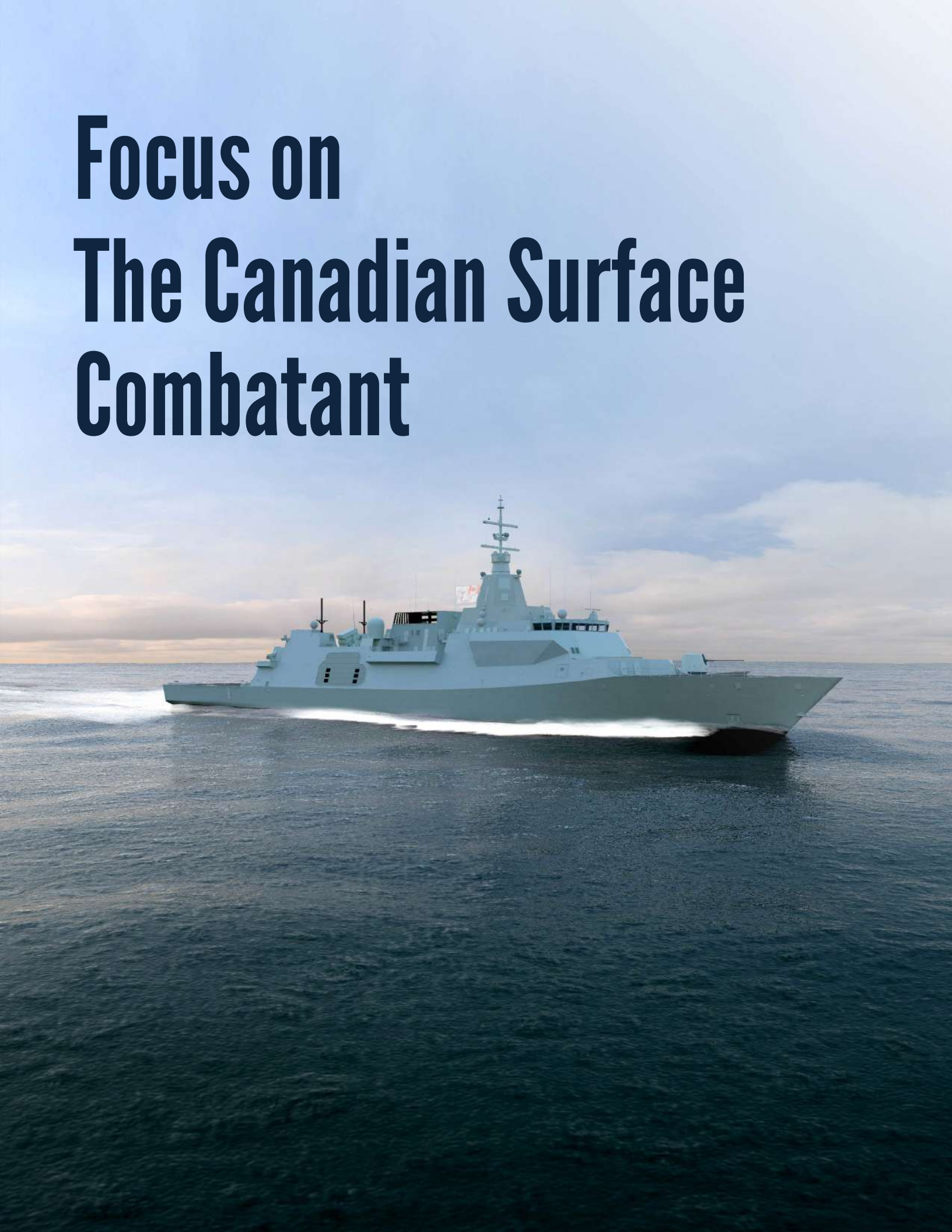
Concluding Remarks

As I said in my introduction, I truly believe we are springing into action on many fronts. That said we face some challenges as well – we need to recruit new and younger members – it remains the big elephant in the room. I think we are developing a great program, but we need to market ourselves and that ultimately rests on us as individual members. Hopefully we emerge from the COVID with a great "product line" that we can share and use it to attract a new generation of members.

I want to thank all those members who support me and the organization no matter how big or small. Stay safe, healthy and please do have a laugh or two every day! As the logo on my favourite ballcap says "Life is good!".

MV Asterix (Marlant, Twitter)

Focus on The Canadian Surface Combatant



In early February 2021 the NAC released its in-depth analysis of the National Shipbuilding Strategy and the Canadian Surface Combatant. Focused on the complexity of the program and the difficulties of comparing the CSC to foreign competitors, the report offers policy makers, journalists, and expert commentators a different perspective with which to view the Program. We've reproduced this report in Starshell to expand the report's circulation and encourage NAC members to think about what knowledge and ideas they might want to bring forward to contribute to the organization's ongoing deep research efforts.

THE NATIONAL SHIPBUILDING STRATEGY AND THE CANADIAN SURFACE COMBATANT

In the years to come, the Royal Canadian Navy (RCN) will undergo a dramatic recapitalization as the country replaces its ageing combat fleet. How this happens and what it will cost are important considerations that have attracted a great deal of attention in recent weeks. More complex than many headlines imply, the realities of shipbuilding and costing are essential elements that must be understood. With this in mind, the Naval Association of Canada (NAC) has produced this report to highlight and clarify some of this complexity, while dispelling some common myths.

This paper is not without controversary, particularly given the fact that the Parliamentary Budget Officer (PBO) is now working on reviewing the costing of the Canadian Surface Combatant (CSC) Program. That PBO work is essential, contributing as it does to a better understanding of the costs and risks inherent in this technologically complex project, which is vitally important to Canada's sovereignty, defence, and prosperity.

What the NAC offers is a framework for understanding those costs and comparisons. This paper presents facts, not opinions. It is the product of numerous consultations with knowledgeable individuals who have written on this subject in the past. It has undergone a rigorous vetting by several former government employees with significant experience on the National Shipbuilding Strategy and CSC Project files. It is hoped that this work, combined with the PBO Report, will give Canadians a more complete understanding of the CSC Project and how vital it is to Canada.

Yours Aye,
Bill Conconi
President | Naval Association of Canada
February 4th, 2021
https://www.navalassoc.ca/

In February 2019, the government of Canada announced the selection of the British Global Combat Ship as the template for its next generation warship. An expensive and complex undertaking, the construction of fifteen Canadian Surface Combatants (CSC) represents both the future of the Royal Canadian Navy (RCN) and the most complex element of the National Shipbuilding Strategy (NSS)[1] – a multi-decade effort to rebuild Canada's shipbuilding industry and replace most of the country's federal fleets. This fleet renewal – with the CSC as its centerpiece – is the largest defence and security procurement in Canadian history. Understandably, the cost, size, and complexity of the undertaking has attracted attention, concern, and at times, misunderstanding.

This fleet renewal – with the CSC as its centerpiece – is the largest defence and security procurement in Canadian history. Understandably, the cost, size, and complexity of the undertaking has attracted attention, concern, and at times, misunderstanding.

At the forefront of this consideration is the question of cost. From an initial 2008 placeholder budget of $26.2 billion, the project costs have increased to $56-60 billion. In February 2019, the Parliamentary Budget Officer (PBO) estimated that final costs could be as high as $70 billion.[2] Citing unspecified members of parliament and industry representatives, journalist David Pugliese has recently suggested that the NSS's current course could be altered to achieve cost savings with a less expensive ship.[3] Publicly available numbers seem to make the case for such a course correction, with competing warship designs often priced well below what the PBO and the Department of National Defence (DND) suggest the CSC will cost. Yet, there is considerable danger in simplifying so complex a process, and such a sophisticated platform, to a simple number. Often missing from the public reporting is the detailed breakdown of the costs involved in building these ships – between the actual construction of the vessels and the project costs that would exist regardless of the selected

Construction of HMCS Harry DeWolf,

design. Missing also is the broader strategic value of domestic shipbuilding and marine services, the benefits to the Canadian economy, and the challenges of comparing two different warship designs – due to their dissimilar capabilities and because of the unreliability of the publicly available costing data. This paper highlights both the broader value to Canada of the NSS and the difficulties of comparing the CSC to alternative vessels. In so doing, the Naval Association of Canada's goal is to add nuance to what are often purely economic comparisons and to suggest a more holistic way of understanding Canada's approach to shipbuilding and the CSC Project.

Impact of the National Shipbuilding Strategy

The decision to build Canada's federal fleets at home, rather than procure them abroad, was an important one, with significant economic and strategic ramifications. In the early 2000s it was clear that many of Canada's aging ships would need to be replaced. Both the Coast Guard and the Navy required recapitalization and this shipbuilding backlog presented both a challenge and an opportunity. In 2001, federal policy called for this building to be undertaken in Canada; a policy reiterated in 2006 and endorsed by both Liberal and Conservative governments.[4] This decision was nothing out of the ordinary – it is both Canada's *modus operandi* and standard international practice when it comes to large defence acquisitions.[5] While an immense and costly project, the recapitalization of its combatant and non-combatant fleets offered Canada the opportunity to rebuild its maritime industry, much of which had atrophied from years of neglect. Earlier, isolated attempts at procuring vessels had been a failure; the Coast-Guard's Mid-Shore Patrol Vessel and the RCN's Joint Support Ship Project cost taxpayers and industry tens of millions with nothing to show for it.[6] What was clear was that Canada had lost the ability to manage complex shipbuilding projects. Its infrastructure and design capabilities had been whittled away by the Program Review of the 1990s and the resultant reduction in defence spending which caused the delay or cancellation of major defence projects. At the same time, vital corporate knowledge dissipated with retirements and downsizing across DND, Industry Canada, and Public Services and Procurement Canada (PSPC).[7]

Building ships in Canada therefore became a question of more than just joining steel – it meant rebuilding the complex system of project managers, designers, maritime engineers, and other human capital that goes into building some of the most sophisticated warships in the world. The NSS was the government's answer to that renewal: a long-term effort to support two shipyards with a consistent set of

Building ships in Canada therefore became a question of more than just joining steel – it would entail rebuilding the complex system of project managers, designers, maritime engineers, and other human capital that goes into building some of the most sophisticated warships in the world.

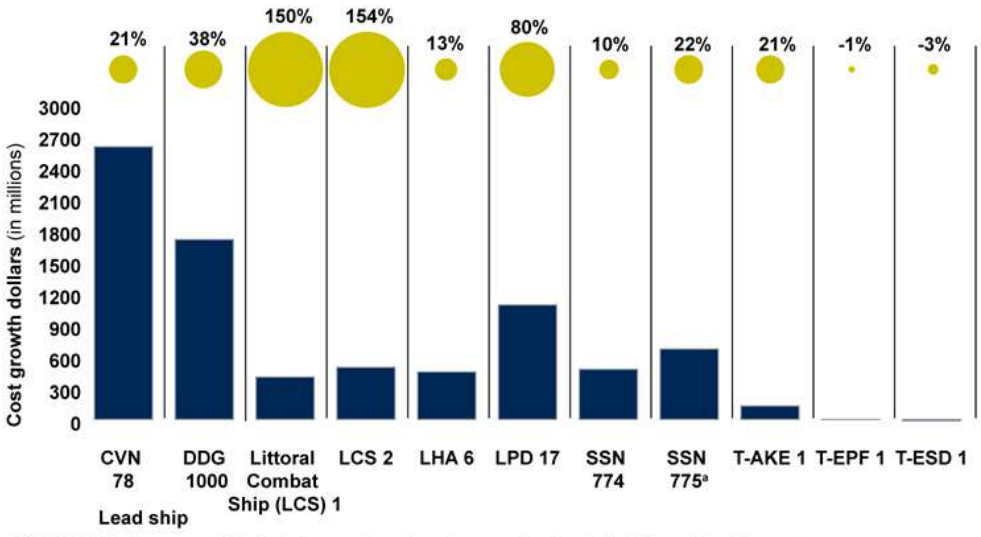
orders to break the boom-and-bust cycle, which has historically prevented Canada's maritime industry from taking root and sustaining itself. The decision was made that large federal ships would be built in Canada by Canadian workers, and Irving Shipbuilding in Halifax and Seaspan's Vancouver Shipyards were selected to build them.

The decision to go this route was made for obvious reasons. No government is anxious to spend tens of billions of dollars overseas if it can be put to work at home, particularly in high-tech, value-added industries. The NSS was a massive undertaking and invariably became the subject of criticism as timelines shifted to the right. Naturally, rebuilding an industry, modernizing the country's shipyards, and building complex vessels with a new workforce resulted in higher costs. However, for complex warship projects the challenge of cost certainty and overruns is not unique to Canada. A detailed study by the United States Government Accountability Office (GAO) showed that lead ships in the American Navy typically cost a total of $8 billion USD more to construct than initially budgeted.[8] In Figure 1 this cost growth is shown, illustrating how the three US lead ships exceeded the budget by 80% or more, as indicated in Figure 1.

In making the decision to build locally, Canada accepted that it probably would pay more for ships and they would take longer to build. Eric Lerhe puts that the 'build at home' premium at roughly 10%.[9] This has naturally attracted criticism, with calls to buy off the shelf from an experienced foreign yard.[10] Yet, there is a great deal more complexity behind the economics and strategic value of shipbuilding than such simple costs comparisons tend to yield.

The economic rationale for the NSS was to ensure that the defence dollars spent would be sunk back into the Canadian economy. While narrow analyses of ship costs do not examine the direct and indirect value to the broader Canadian economy and industrial base, this economic impact was always a driving force behind the NSS. The details of the NSS's impact on the Canadian economy have been explored in depth elsewhere and, while calculating the full implications is impossible, it has clearly been significant. In their 2017 study on the subject,

Figure 1: Lead ships cost overrun in US Navy



[a]SSN 775 is the second Virginia class submarine, but was the first hull delivered by Newport News shipyard. SSN 774, the lead ship of the class, was delivered by Electric Boat shipyard.

Source: GAO analysis of Navy documentation. | GAO-18-238SP

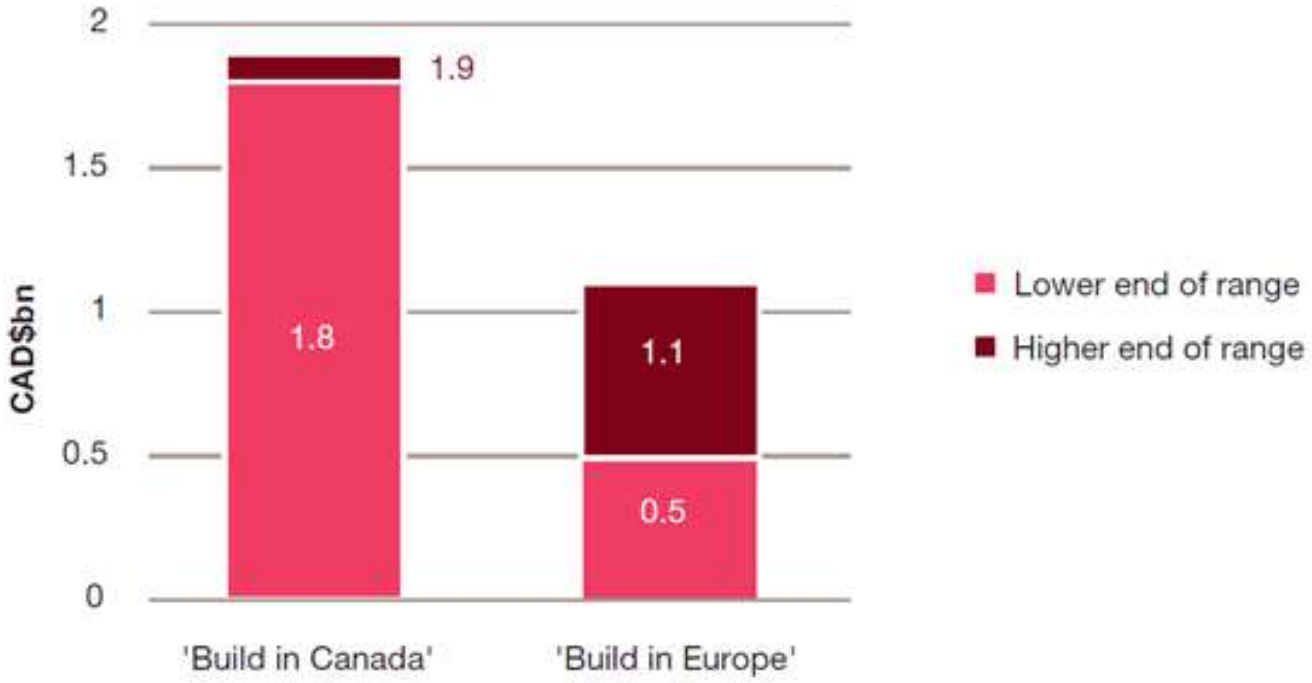
CVN 78	Ford-class nuclear-powered Aircraft Carrier
DDG	Arleigh Burke-class guided missile Destroyer
LCS1	Freedom-class Littoral Combat Ship
LCS2	Independence class Littoral Combat Ship
LHA	America-class Amphibious Assault Ship
LPD	San Antonio-class Amphibious Transport with a dock
SSN 774	USS Virginia nuclear powered Attack Submarine
SSN 775	USS Texas nuclear powered Attack Submarine
T-AKE	Lewis and Clark-class dry Cargo Ship
T-EPF1	Spearhead-class Expeditionary Fast Transport Ship
T-ESD 2	John Glenn-class Expeditionary Transport Dock Ship

PricewaterhouseCoopers LLP concluded that the local economic and tax benefits would allow Canada to build the CSC for 13% less than had they been ordered from a European yard.[11] The reason for this is clear. While the need to retool the Canadian shipbuilding industry may create inefficiencies and drive up costs in the short and medium term, the overall economic and tax benefits compensate the government for that premium. Irving Shipbuilding, for instance, calculates that one-third of its labour costs comes back to the federal and provincial governments in taxes on wages alone.[12]

Because Canada lacks the capability to produce some of the specialized systems being incorporated into the CSC, contracts ensure that suppliers offset that money flowing out with investments back into Canada. These Industrial and Technological Benefits (ITB) have been enormously beneficial to Canada and extend beyond defence into many other sectors of the Canadian economy.[13] Reportedly some CSC Project subcontractors have made commitments of over 200% of the value of the potential contract to win business. While this indirect contribution to the Canadian economy is significant it remains a less reliable contributor to economic growth than direct project spending.[14] Recent reporting by David Pugliese emphasises the difficulties of quantifying and tracking these investments.[15] A similar conclusion was reached by PricewaterhouseCoopers in its 2017 analysis, which showed that direct, local construction remains a far greater and more certain economic driver.[16] This assumption underpins the economic rationale of the NSS: local spending offers the best return for the government, through tax and economic growth. There are immediate benefits to the government as well as long-term advantages from a rebuilt industry that provides upgraded training for an entire workforce and establishes a reinvigorated maritime supply-chain across Canada.

In

Figure 2: Benefit to cost ratio: benefit to Canada from every $1 billion spent



PricewaterhouseCoopers LLP, "Value for Canada The cost versus benefit to Canadians of the National Shipbuilding Strategy," (May 2017).

advancing the NSS, Canada faced the added difficulties of building complex ships while simultaneously rebuilding a complex industry. That rebuilding process was slow and invariably led to delays – which, in turn, led to price inflation for the ships being produced. In procuring military equipment, the surest way to increase cost is to introduce delay. Major warship costs have historically grown well beyond the economy-wide rate of inflation, with a Rand Corporation study placing that inflation at between 7-11% per year on average over the last 50 years.[17] Ian Mack offers a similar estimate of roughly 10%.[18] Looking at this process at work in Canada, Ryan Dean's 2015 study of the Arctic and Offshore Patrol Ship (AOPS) Project showed how delay reduced the government's buying power, contributing more to price increases than any other factor.[19]

Moving slowly to implement the NSS was unavoidable for Canada. Not only had its shipbuilding capability withered but the government's own capacity to execute major projects had atrophied. Outside third parties had to be engaged, which expended additional time and resources. Considerable time was spent negotiating with the shipyards and conducting industry consultations and independent reviews while attempting to ensure maximum transparency. Renovating the shipyards in Halifax and Vancouver was expected to take approximately 36 months[20] but actually lasted 60. Given that Canada had not undertaken a major warship construction project comparable in complexity to the CSC in over 25 years there was much to relearn. This necessitated extensive consultations with industry from 2012 to 2016, including CSC Project Industry Days and ship visits that consumed significant time and effort from the project staff. The direct benefits of such unprecedented consultations are hard to determine, but from many in industry they were viewed as excessive and unnecessary.

While the broader economic impacts of the NSS are difficult to factor into the unit cost of an individual warship, the strategic value of the program is immeasurable

While the broader economic impacts of the NSS are difficult to factor into the unit cost of an individual warship, the strategic value of the program is immeasurable. Beyond the dollars and cents of procurement considerations rests the basic strategic rationale for having a navy: Canada is a maritime nation that must protect its interests on the world's oceans and its national security against threats from the sea. At a time of growing great power competition and threats to the freedom of the seas from both state and non-state actors, that dynamic is becoming more important every year. Generating that capacity entails far more that the simple acquisition of a warship; it includes maintaining, repairing, and refitting these complex weapon systems over their expected thirty five-year plus lifespans. Unfortunately, the physical infrastructure and human capital needed to do that work had disappeared during the lean years of post-Cold War budget cuts. Some of the costs incorporated into the

Irving Shipbuilding's yard in Halifax

NSS, expressed in the price of the ships being built, are these long-term investments in physical plant, corporate knowledge, and supply chains that are difficult to value.

Without the vibrant shipbuilding industry and industrial supply chain that is being resurrected by the NSS, Canada would be unable to efficiently maintain and refit these new ships. Costs for overseas maintenance are roughly 25% higher than work performed domestically[21] and this still leaves Canada dependent on foreign yards in even the best of times. In times of crisis, an indigenous capacity to equip and refit ships is essential. It is certain given past experience that any defence emergency affecting Canada would involve the country's allies as well, all of whom would naturally prioritize their own forces for refit and repair, leaving Canada with high-end warships, but no ability to sustain them when it was needed most.[22] Canada must therefore, ensure that its requirements can be met in ways that permit independent action.

Ship Costs versus Program Costs

Some confusion normally surrounds ship costing terminology, a fact that Eric Lerhe attributes to the inability or unwillingness of states to provide complete costing data on their warship acquisitions. Commonly cited ship costs are often the "sail-away" prices, which is the cost to purchase a single ship. What it excludes is program management, tests and trials, initial onboard spares, tools, weapons, fuel, government procurement salaries, software, facilities in direct support of the ship or its construction, ship training, technical data and expenses, and a host of other incidentals.[23] In Canadian costing, these are called program acquisition costs and can make up 40% to 50% of the cost of the project.[24] Even if Canada were to build offshore, program costs would remain sizable since they would include the salaries and benefits of all government of Canada personnel assigned to the project. The Canadian Patrol Frigate Project of the 1980s/90s, for instance, included over four hundred personnel at its peak, from DND, Public Works and Government Services Canada, and the Departments of Industry, Justice, and Regional Industrial Expansion. The salaries and benefits for this staff added at least $308 million [roughly $500 million in 2020 dollars] in project costs. Significantly, neither NATO nor the US government permits the inclusion of salary or benefits in their project management calculations,

adding another complication to cross-national comparisons for Canada.[25]

Canada also faces added costs compared to other nations because it lacks the standing project management capacity present in nations such as the United States. Because Canada does not build warships continuously, DND must stand up a dedicated project staff for each project. This activation has costs as the organization faces steep learning curves, needs equipment and housing, and often outside expertise. Due to the complexity of the CSC Project, the government has created an additional layer of oversight in a Secretariat using staff from DND, PSPC and Innovation, Science and Economic Development Canada – all of which are billed to the project.

Canadian shipbuilding projects are also more comprehensive than is commonly understood. While the ships themselves are at the heart, there is also spending on necessary infrastructure, rolled into the price of the vessels. For example, the AOPS Project costs included not only the price of the ships but also jetty improvements in Esquimalt and Halifax, as well as a deep-water berthing and fueling facility in Nanisivik, Nunavut. Likewise, the CSC Project includes the construction of a Land Based Test Facility, with new buildings constructed to specific security requirements and a complete combat system of the ship (including radars) provided for trials and testing before installation in the first ship. This is the same with schoolhouses that will house simulators to support the training of the ships' companies on both coasts. There will also be jetty upgrades to accommodate the much larger ships. These are not mere concrete piers, they include cranage, fibre optic information systems connections, electrical connections, and potable water and black/grey water connections. There will also be changes to the Fleet Maintenance Facilities to support a new class of ship and, while the In-Service Support Contractor (ISSC) will supply some infrastructure, Canada will pay for it through the ISS contract.

CSC Project Costs

Over the past twelve years, the estimated cost of the CSC Project has increased considerably. As stated earlier, in 2008, the CSC Project's original placeholder budget was set by DND at $26.2 billion; from there it grew to $62 billion in 2017, and perhaps more in 2021.[26] This inflation is commonly attributed to project mismanagement and DND's gold plating its requirements. The reality, however, is more complex. The huge increase in cost estimates in 2017 is one of the main reasons for the scrutiny that the CSC Project is currently facing. Yet, that initial $26.2 billion costing, the origins of which have never been explained, was never intended to be a definitive estimate,[27] nor was Canada well placed to make one. As the Auditor General wrote in 2013:

"The initial budget for each class of military ship was set years before construction will begin. As such, the estimates were very imprecise and should be regarded as, at most, placeholders. As the military ships are complex developmental projects, their design will be defined more precisely over time, which will result in greater certainty on the cost of the vessels. It is not realistic to expect that the original budget cap will remain the same from a project's conception to completion."[28]

Canada was particularly ill suited to set reasonable budgets in the early years of the project given how badly its capability to generate high-end cost estimates for defence platforms had deteriorated.[29] Even Canada's allies, with more established ship procurement processes, regularly suffer from similar budget overruns.[30] The two US Navy Littoral Combat Ship variants, for instance, saw significant cost inflation.[31]

The cost of the CSC Project also grew as a result of lengthy procurement options analyses, endless inter-departmental consultation, and industrial growing pains. Timelines were extended even further by the fact that the CSCs could not be the first ships of the combatant fleet within the NSS. Given the complexity of a modern warship, it was

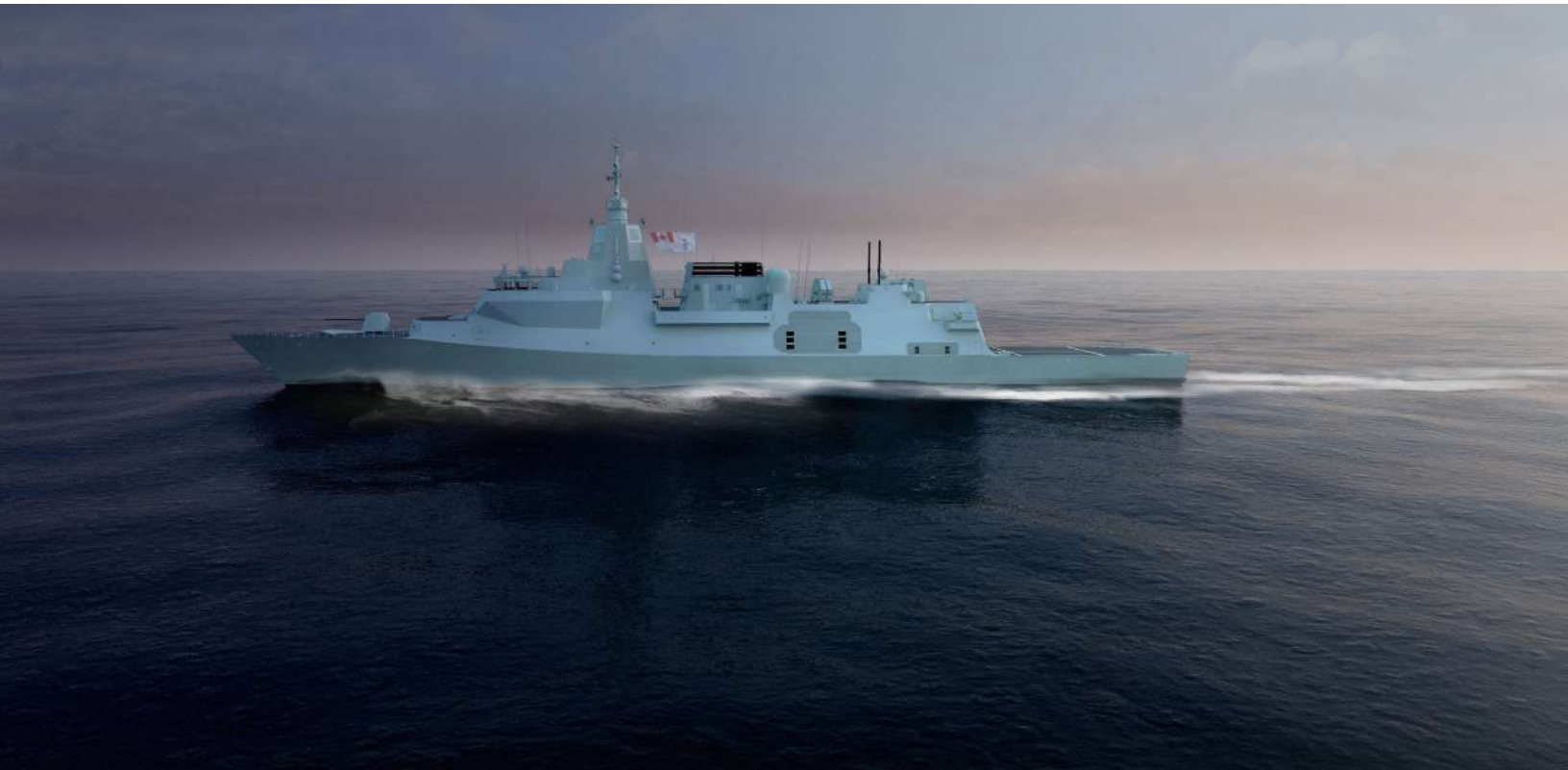
decided that the revitalized Irving yard should build the less sophisticated Harry DeWolf-class AOPS first as a way of gearing up the facility and developing skillsets and processes on an easier build.[32] While this strategy was logical it caused years of delay and eroded buying power.

Defining and Designing the CSC

As discussed earlier, Canada decided to proceed with the NSS and domestic shipbuilding for solid economic and national security reasons and that process has had the continuing endorsement from all the major political parties. The CSC will be a large and expensive multi-purpose frigate with an average sail away price of roughly $2 billion CAD.[33] Additional program costs are expected to add roughly $30 billion. The UK has ordered five Type 31 frigates for an announced price of £250 million per ship ($435 CAD) while the US Navy is building its new Constellation-class for $800 million ($1.1 billion CAD) each.[34] The price gap is the result of differing capabilities but also the different costing methodologies eluded to above. Yet these prices range from the aspirational to the unbelievable.[35]

In theory, comparing ship costs should be a clear-cut comparative exercise, something quantifiable that can be distilled down into a spreadsheet. Unfortunately, that is not the case. Like shipbuilding, ship-pricing is an extraordinarily complex exercise which goes well beyond the headline sticker prices pulled from open sources like Wikipedia for inclusion in media – or even government – reporting.[36]

Purchasing a warship is in no way equivalent to shopping for an item at competing merchants. There is no sticker price and costing methodologies are often radically different. While a foreign build may have a lower advertised price, an attempt to rationalize that platform against the chosen CSC design is an exercise in comparing apples to oranges for a variety of reasons. To begin with, foreign costing estimates may or may not include Government Furnished Equipment such as weapons systems or radars removed from an older ship and reinstalled in the new platform as part of the build. For example, the British government has indicated that, for the Type 31, it intends to repurpose a number of systems, likely including the Sea Ceptor missile system and the Type 997 Artisan radar, currently in service in the Royal Navy Type 23 frigates.[37] The US Navy's pricing for its new frigates also excludes systems and associated software, which includes a new version



of the sophisticated Aegis Weapon System.[38]

Similarly, ammunition and spares may or may not be included in the cost, or only partially included. As part of its calculations, Canadian estimates are normally based on a full load of missiles, ammunition, and spares for the lifetime of the vessel, whereas other nations frequently price their ships based on the sail away cost: including an initial load-out and, in some cases, no ammunition or spares. Official costing for the CSC includes a wide array of expenses that are normally not incorporated by foreign shipyards. These included: two years of spare parts and ammunition, training, government program management, upgrades to existing facilities, and applicable taxes.[39] This ambiguity in pricing likely came into play in 2017 when the French-Italian consortium from the firm Fincantieri proposed to deliver 15 FREMM[40] frigates, built in Halifax for a fixed cost of $30 billion.[41] The price was lower and with reduced risk, however what it included was never made public. Each shipbuilder offers its most attractive prices for vessels in public relations material, yet these publicly accessible unit ship prices rarely survive first contact with reality and, once project costs and design modifications are added, the final price is invariably higher. Accurately comparing ship costs against one another is inherently difficult until contracts are available for both ships.

A good example of this pricing illusion comes from the Canadian media's continued insistence that Canada had wildly overpaid for the AOPS Project. At $400 million per vessel the new Harry DeWolf-class AOPVs appear far more expensive than the similarly sized Norwegian ship *Svalbard* (official price $100 million USD)[42] or the much smaller Danish Knud Rasmussen-class (official price $70-80 million USD).[43] Yet behind these prices lay heavily subsidised industries that produced official prices unrepresentative of the true cost of the ship. Those ship costs also excluded supporting infrastructure, training, ammunition, spares, many onboard systems, and the huge contingency that is factored into Canadian procurement projects. The price was a mirage and when Canadian representatives requested a price from the Norwegians for a *Svalbard,* they were told that there was no firm 'sticker price' and that it would take over a year to even assemble a realistic quote.[44] That was the conclusion of the PBO as well, which dismissed the notion that Canada could actually procure a Svalbard-class for that all too frequently cited price tag.[45]

Most critically, advertised prices always exclude the costs of modifications to suit local conditions and requirements.[46] As with house building, the price is based on the base-line model; however any design changes and upgrades will add additional costs in drafting, labour, and materials. This activity is a significant cost in the early part of every warship construction project. After accepting the BAE Global Combat Ship design, Canada began a requirements reconciliation process with Irving and the winning bid team led by Lockheed Martin Canada and BAE Systems. That work has been significant as the ship design has been appreciably altered in some areas from the British Type 26 variant to accommodate specific Canadian needs. These include the ability to operate the large Canadian CH 148 Cyclone maritime helicopter and integrate the Canadian Combat Management System with the US Aegis weapons system, which is built around a large, phased array radar. Like Australia, with similar requirements to Canada, this has meant significant design changes to allow for a larger and more powerful radar system which impacts the overall ship design, particularly as it relates to ship stability and power generation. The British, on the other hand can afford to have a less capable radar system for their Type 26 frigates since they also operate Type 45 Air Defence destroyers which employ comparable high-end radars.

When comparing different ship classes and costs, this reconciliation process becomes a significant variable. Canada would need to make

changes on any design; however, the extent and cost of these modifications would not be known until well into the reconciliation process. The publicly available prices for competing warships naturally exclude this unknowable cost and older designs would likely require significantly more work to revive dormant production plans and bring them up to Canadian requirements. Fincantieri's 2017 FREMM proposal, for instance, could not have included such modifications, leaving the door open to a significant price increase in even a 'fixed price' offer. As such, attempting to make direct comparisons is extremely problematic.

The CSC Build Strategy

How Canada builds its ships is also an important consideration in the overall cost. Seeking to maximize productivity and economies of scale, most shipyards build in batches or 'flights' of three or four ships. The Canadian Patrol Frigate, for instance, was built in two batches of six, with the first split between Saint John Shipbuilding in New Brunswick and MIL-Davie in Quebec and the second built in Saint John. This build strategy allows the buyer to secure better prices when purchasing equipment. In comparison, Canada has chosen to extend the CSC build schedule to maximize employment and spread the cost over an unprecedented 33 years. While a slower build will maximize some cost savings as lessons are learned and efficiencies incorporated, there will be few economies achieved through the bulk purchasing of equipment.

Canada originally planned to build 15 CSCs in three distinct flights in two variants. The first variant would be of Air Defence/Task Group Command vessels (3 in number in Flight 1) and the second variant, a General-Purpose Frigate, (12 in number) and constructed in two flights of six ships.[47] This approach faced some technical challenges and elevated programmatic risks, whether pursuing two distinct ship designs or a single design with modifications between variants. The approach of three separate flights also posed

risks in so far as it introduced the potential for an interruption in the build schedule. In the end, the pursuit of two variants was abandoned, as was the segmentation of the 15 ships into separate flights.

For a small, general-purpose navy, a single class of vessels using one design provides flexibility in mission planning, crewing, and ensuring operational readiness. There are also clear supply chain advantages and economies of scale achieved by having fleet commonality. A single class of ships minimizes duplication of fixed project costs in design processes and engineering. During ship construction, this also minimizes the delays and costs of switching between designs.[48] Simply put, Canada cannot afford to have a large fleet of specialist ships and must incorporate many capabilities into a single design.

Canada also builds its ships to the highest standards to ensure that the Navy can maximize their service lives. This approach does result in higher costs, but the ships serve Canada much longer. The Halifax-class frigates, for instance, will be retired in the early 2040s after roughly 45 years in service.[49] Canada is aiming to secure more than thirty years of life from each CSC and, given the RCN's operational history, that is likely an understatement.[50] Still, that 30+ years is at least 20% more than the USN expects to achieve from its Constellation-class frigates.[51] The Canadian approach to long-lifespans adds short term costs but it has proven effective and efficient. The UK Type 23 frigate project from the 1990s offers a cautionary contrast. Those ships were designed for an 18-year service life to avoid expensive mid-life refits and to keep a continuous drumbeat of naval shipbuilding in the UK. Failure to replace them as planned meant that those ships have all exceeded their designed service lives and are currently undergoing unbudgeted and expensive hull and propulsion renewal to keep them running until replaced by the Type 26 and Type 31 frigates in the 2030s.

Assessing Relative Capabilities and Cost of Warships

Comparing competing warship designs is a complex task; one which entails not only measuring wildly different project costs and contractual requirements, but the actual capabilities of the ships themselves. Not all frigates are created equal and understanding Canada's requirements and what each ship class offers (or does not offer) is vital to understanding the value of the project. This is a difficulty that Parliamentary Budget Officer Yves Giroux raised in an interview with the *The Hill Times*, noting that "comparisons are not very easy to do and there are not that many [countries] in the world where information is readily available [for comparison]." Giroux highlighted the fact that serious "difficulty arises when trying to compare different ships, with different capabilities, being built by different shipyards, and under different timelines … It's not always easy to compare capabilities that vary greatly from one country to the other."[52]

Other frigates share little but the name with the CSC. The British Type 31, for instance, lacks area air defence and maritime strike weapons, but most importantly from the Canadian standpoint, it is not designed and equipped for anti-submarine warfare. It will be used for lower-end tasks such as forward presence and patrolling missions, while the British Type 26 frigates undertake higher-end combat and anti-submarine escort duties.[53] Notably, because they are part of a multi-class fleet mix which includes dedicated air defence ships, the Type 26 frigates also have a less robust anti-air defence and maritime strike capability than the CSC.

Canada is acquiring the CSC high-end multipurpose frigate for sound strategic reasons rooted in Canadian force structure, defence requirements, national geography, and fleet size.[54] What an individual ship can accomplish is less important than the effect that a navy as a whole can achieve. Canada's European and American allies are procuring both high-end and low-end

warships as part of a fleet mix that also includes systems that Canada does not have. Nuclear attack submarines, cruisers, and aircraft carriers give some NATO allies a wide array of specialty capabilities spread across several types of ships – allowing their frigates to specialize. The FREMM frigates in service with the Italian navy – and those planned for the US Navy – are principally ASW ships with some general purpose capability, while the French have fielded an anti-air warfare variant. In each case there is a trade off as the ship specializes, yet those platforms' vulnerabilities are covered by other ships in those much larger fleets. The American FREMMs, for instance, will not require as robust an air-defence capability because that is provided by US cruisers and destroyers.

Conclusion

Canada's naval policy, *Leadmark 2050*, states that "building a navy is a series of 40 to 50-year investments, each one of which … determines what future governments will have at their disposal to respond to events that can be scarcely imagined when a class of warships is on the drawing board."[55] The NSS and the future fleet of CSC were designed not simply to replace the Halifax-class frigates and Iroquois-class destroyers, but to give Canada flexibility and options in the face of an increasingly uncertain global security environment. A broad strategic initiative to revitalize Canada's indigenous shipbuilding and maintenance capabilities, the NSS was conceived not only to capture the maximum economic benefit from shipbuilding, but to ensure that the future Navy could be supported effectively in peacetime and quickly in crisis. The cost of rebuilding that infrastructure and human capital is high but must be balanced against the significant economic stimulus coming from the billions of dollars which will be injected into the Canadian economy.

A broad strategic initiative to revitalize Canada's indigenous shipbuilding and maintenance capabilities, the NSS was conceived not only to capture the maximum economic benefit from shipbuilding, but to ensure that the future Navy could be supported effectively in peacetime and quickly in crisis.

As the most complex output of the NSS, the CSC Project has seen its projected costs increase beyond the initial $26.2 billion budget placeholder as Canada defined and costed the full scope of this complex industry and ship building endeavour. Cost increases beyond this first full estimate have been largely due to delays and the subsequent reduction in buying power. Yet, a simple dollars and cents comparison to similar warship designs is extraordinarily complex, and too frequently over-simplified. Drawing cost comparisons means standardizing vastly different approaches to costing, taking into consideration project costs that are rarely public, and redesign expenses that are – by their very nature – speculative. Canada's unique strategic requirements and position in the world, its need for a long-lived, multi-role, globally deployable frigate capable of working in the near-Arctic or in tropical waters adds costs and can

be difficult to value precisely.

Clear communications have been a government failing in recent years as Canadians have not been given a transparent appraisal of the project's price tag and the nature of the costs. In 2016 the government recognized that issue, identifying problems with "insufficient communications … on the cost, timelines and progress of various builds." The assessed solution was more regular reporting, yet this was never acted upon.[56] This information vacuum has been filled with criticisms, emanating from industry, opposition parties, and media commentators – some of it legitimate but much oversimplified or misguided. It would be dangerous to allow false comparisons and an incomplete understanding of what the NSS was intended to accomplish to delay or scuttle the now well-advanced CSC Project. Such delay would risk a serious capability gap if the Halifax-class frigates, like the Iroquois-class destroyers, are retired without replacement.

Ensuring that Canadians get the best value for their money is an important task. It is essential however, that Canadian decision makers consider the analysis within the complex framework that we have laid out in this paper, and which has been elucidated in detail by Canadian naval procurement experts and strategists since the NSS was initiated.[57] The differences between Canadian shipbuilding and the CSC Project on the one hand, and foreign warships alternatives on the other, are complex and often ambiguous. It must be recognized that Canada's future fleet was selected for unique Canadian requirements in a world where maritime strength is rapidly regaining its currency.

Notes

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[3] David Pugliese, "Defence Watch: New dates set for budget watchdog's reports on major naval projects," *Ottawa Citizen* (October 23, 2020).

[4] Auditor General of Canada, "2013 Fall Report of the Auditor General of Canada" (2013).

[5] Tom Ring, "How did we get to where we are now?" CGAI (March 2016), 2.

[6] Jeffrey Francis Collins, "Executive (In)Decision? Explaining Delays in Canada's Defence Procurement System, 2006-201," PhD Dissertation, Carleton University, 2018, 86 and Ring, 2.

[7] Dave Perry, "Putting the 'Armed' back into the Canadian Armed Forces: Improving Defence Procurement in Canada," Macdonald Laurier Institute/CDA (January 2015), 8.

[8] United States Government Accountability Office, GAO-18-238SP June 2018 Finding 01, 8

[9] Eric Lerhe, "Fleet Replacement and the 'Build at Home' Premium," Vimy Paper no. 32, CDAI (July 2016), 1.

[10] RW Stacey, "Canadian Naval Shipbuilding: Enough is too Much," Canadian Forces Command and Staff Course, New Horizons Paper, 1990, 11 in: Paul Malone, "Canada's National Shipbuilding Strategy: Off the Shelf, or Built at Home?" Canadian Forces College, JCSP 44 Paper (2018); Michael Byers report, "Onto the Rocks" (December 2017); and Terry Milewski, "Canada's Vast Shipbuilding Plan Still at Starting Line,"*CBC News*(May 4, 2015).

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[13] See for instance: Irving Shipbuilding, "IRCO Automation seeing global success from Canada's ITB and National Shipbuilding Strategy" (November 5, 2018). BAE Systems is supplying the AOPS gun system, and as an offset is contracting IRCO Automation, a small Ontario business, to design, fabricate and install components for the US Navy's Virginia Class submarines.

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[15] David Pugliese, "$70 billion warship project promised thousands of jobs, but who knows how many will be delivered?"*Ottawa Citizen*(December 14, 2020).

[16] PricewaterhouseCoopers LLP, "Value for Canada: the cost versus benefit to Canadians of the National Shipbuilding Strategy," (May 2017).

[17] Ryan Dean, "Adrift in Inflationary Waters, *Canadian Naval Review* 11:2 (2015), 4.

[18] Ian Mack, "Launching the Canadian Surface Combatant," CGAI (December 2020), 9.

[19] Ryan Dean, "Adrift in Inflationary Waters,*Canadian Naval Review* 11:2 (2015), 4-10.

[20] Tom Ring, "How did we get to where we are now?" CGAI (March 2016), 7.

[21] Mott MacDonald, "Economic Analysis of National

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[22] See: Marc Milner, *Canada's Navy – The First Century* (Toronto: University of Toronto Press, 1999), Chapter 6; Marc Milner, "RCN Participation in the Battle of the Atlantic," *RCN in Retrospect* (Vancouver: University of British Columbia Press, 1982); and David Zimmerman, *The Great Naval Battle of Ottawa* (Toronto: University of Toronto Press, 1989).

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[26] Parliamentary Budget Office, "The Cost of Canada's Surface Combatants: 2019 Update," 2019, 5.

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[28] Auditor General of Canada, "2013 Fall Report of the Auditor General of Canada" (2013), 64.

[29] Ian Mack. "A Basic Primer on Naval Shipbuilding," *Canadian Global Affairs Institute* (February 2018), 3.

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[31] US Government Accountability Office, "Navy Shipbuilding," A Report to Congressional Committees (June 2018), 8.

[32] Public Services and Procurement Canada, "Status of Large Vessel Projects – Canada's National Shipbuilding Strategy: 2018 Annual Report" (2018).

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[34] Tom Cotterill, "Royal Navy: 'Good progress' being made Type 31 frigate industry chiefs insist," *The News* (December 29, 2020) and Megan Eckstein, "Fincantieri Wins $795M Contract for Navy Frigate Program," *USNI News* (August 30, 2020). The US costing is based on ships 2 through 20.

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[45] Office of the Parliamentary Budget Officer, "Budget Analysis for the Acquisition of a Class of Arctic/Offshore Patrol Ships" (October 28, 2014), 25.

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[47] Government of Canada, CSC Presentation to Industry, December 2010

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[52] Neil Moss, "DND says Budget for Surface Combatants Remains Unchanged; PBO Report Expected in Late February," *The Hill Times* (November 25, 2020).

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[57] See for instance: Eric Lerhe, "Fleet Replacement and the 'Build at Home' Premium," Vimy Paper no. 32, CDAI (July 2016); Ian Mack. "A Basic Primer on Naval Shipbuilding," *Canadian Global Affairs Institute* (February 2018); Ian Mack, "Launching the Canadian Surface Combatant," CGAI (December 2020); Christopher Nucci, "The Future Canadian Surface Combatant," *Proceedings* 146/11/1,413 (November 2020).

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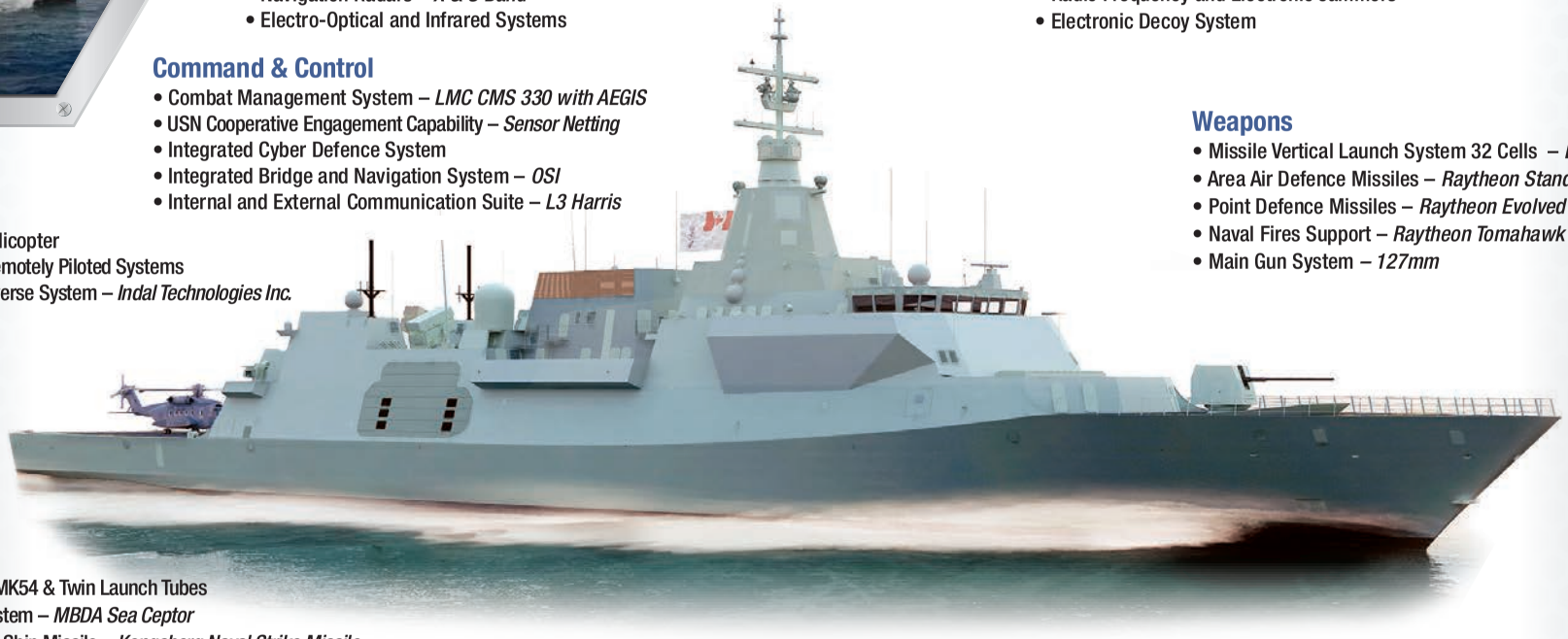

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Royal Canadian Navy Public Affairs - November 2020

Arming the CSC

The Royal Canadian Navy's future Canadian Surface Combatants (CSC) are set to have an impressive and diverse armament, far greater and with more capability than the existing Halifax-class frigates. This includes Sea Ceptor, RIM-162 Evolved Sea Sparrow Missile, and Standard Missile 2 surface-to-air missiles for close-in, point, and area air and cruise missile defense, as well as Naval Strike Missiles for engaging surface targets. Most notably the ship will gain a new land attack capability with the American-made Tomahawk missile, a weapon that the United States has only ever exported to the United Kingdom.

BAE Systems had already begun the construction of the first of eight Type 26 frigates from the UK, with a 24-cell Mk 41 Vertical Launch System (VLS) array, as well as 48 more VLS cells for the RN's Sea Ceptor missile. The CSC will pack a bit more punch, with a 32-cell Mk 41 array – which will be "strike-length," implying the larger version of this VLS that can accommodate Tomahawks and other bigger missiles. It is also possible that the CSC could eventually carry the newer, anti-ship variants of the Tomahawk, such as the Block V Maritime Strike Tomahawk (MST). However, the RCN's ship infographic states that the CSC Tomahawks will be used for naval fire support, a term that typically refers to strikes against targets on land. That very long-range land-attack capability is relatively unique with only a few NATO allies able to launch such strikes.

The CSC will also have the shorter-range Navy Strike Missiles, a very capable and increasingly popular Norwegian-designed weapon. This missile, which uses an imaging infrared seeker that electronic warfare systems can't jam also has a land-attack capability, making it a very flexible weapon in its own right.

The RCN is also planning to fill at least some of the Mk 41 cells on the CSCs with a mixture of RIM-162 Evolved Sea Sparrow Missiles (ESSM) and Standard Missile 2 (SM-2) Block IIICs. Only one SM-2 can be loaded into a single Mk 41 cell, but four ESSMs can be packed in, expanding the ship's available magazine capacity. The plan is for the ESSMs to provide point defense against incoming threats, including barrages of cruise missiles, while the SM-2s tackle more general area air defense duties.

With this already significant anti-air defense capability, it's interesting that the CSCs will also be armed with Sea Ceptors. These will reportedly be quad-packed into a single cell, which would allow these ships to carry 24 missiles in total. ESSM and Sea Ceptor are typically seen as competitors and the Royal Navy's Type 26s will have a 24-cell VLS loaded with them for general air defense. However, on the CSCs, the Sea Ceptor missiles will be filling the role of a close-in weapon system. On the Halifax-class frigate that role is filled by the Phalanx Close-In Weapon System (CIWS) with its 20mm cannon, however a new world of hypersonic missiles led the RCN to abandon gun defence as likely inadequate.

A SM-1 is fired from USS Vandergrift (Photo: US National Archives)

The CSCs' significant armament will provide them with fundamentally different capabilities than the Halifax-class frigates. Armed with Tomahawk cruise missiles, together with the various other missiles they will be able to employ, the ships now look set to offer Canada an entirely new form of maritime power projection.

Source: "Canada's New Frigate Will Be Brimming With Missiles" from *The Drive (November 2020)*

The Cost of the CSC's Missile Magazines

Standard Missile 2, Block IIIC: $2,349,000

Naval Strike Missile: $2,194,000

Evolved Sea Sparrow: $1,795,000

Tomahawk: $1,537,645

Sea Ceptor
Cost Classified

Source: Tyler Rogoway and Joseph Trevithick – The Warzone (cost in USD)

CSC Missile Ranges: New Capabilities and Reach

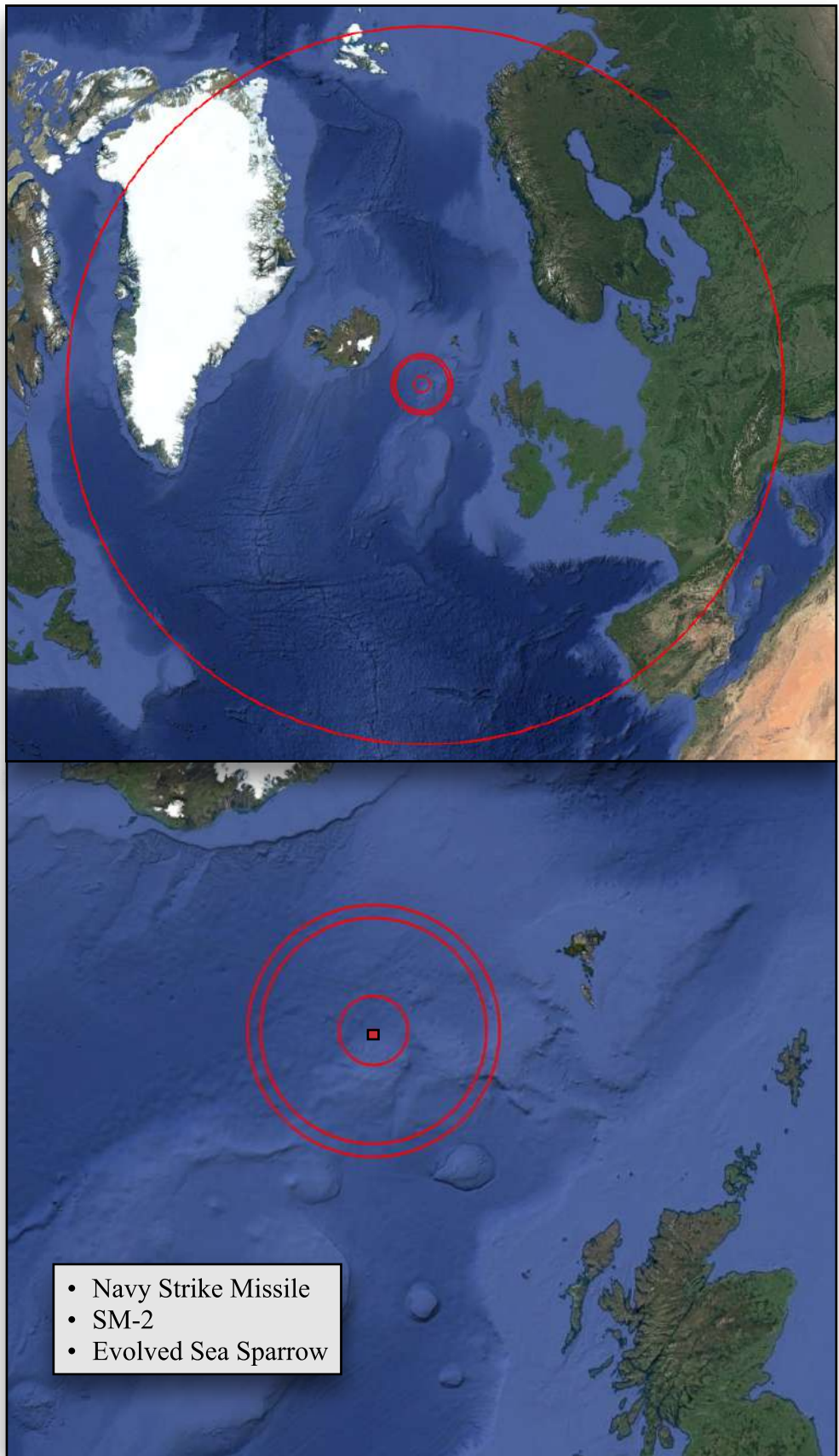
With its magazine of state of the art missiles, the CSC is expected to dramatically extend the Navy's reach and capabilities. Mapped out here are rough range estimates based on publicly available information.

Most dramatic will be the extension of the Navy's ground attack capability with the addition of Tomahawk cruise missiles. While the variant being acquired is unknown, the missile has a range of roughly 1,500 miles. To visualize this, the top map shows a ship placed in the middle of the GIUK Gap, with the largest circle representing Tomahawk range.

The bottom map shows that same CSC with anti-ship and anti-air missile ranges. In descending order these are the missile Navy Strike Missile for anti-shipping strikes, the SM-2 long range anti-missile and anti-aircraft missile, and the Evolved Sea Sparrow short range anti-air defence missile.

This missile coverage is a significant improvement over that of the Halifax-class frigate. Those weapons include the Evolved Sea Sparrow for air defence and the Block II Harpoon anti-shipping missile. While the Harpoon has a limited land attack capability, it ranges out to only 124 km, or roughly 75% of the SM-2 or 67% the NSM.

In a threat environment increasingly defined by area-access and denial and peer-adversaries with highly capable anti-shipping weapons, a longer reach is likely to be a welcome addition to the Navy's arsenal.



Operation Caribbe - Countering Illicit Trafficking by Transnational Organized Crime

LCdr Jeffrey Anderson, CD

HMCS *Summerside* deployed for Operation (Op) *Caribbe* from 26 October to 8 December 2020. It was notable as the ship prepared and deployed in a COVID-19 environment, which increased many existing requirements while creating new ones as well. This article looks at the Operation through the particular lens which HMCS *Summerside* had in the pandemic-influenced deployment.

Op *Caribbe* is Canada's contribution to Op *Martillo*. *Martillo* consists of U.S. Enhanced Counter-narcotics Operations under Joint Interagency Task Force South (JIATF-S)-led multinational efforts among Western Hemisphere and European nations. It is designed to improve regional security, deter criminal activity, and facilitate the interdiction of illicit trafficking of drugs, weapons, money, and people. The Canadian Armed Forces (CAF) have conducted Op *Caribbe* since 2006 with successive deployments of RCN ships and RCAF aircraft. In October 2010, Op *Caribbe* was expanded via a Memorandum of Understanding (MOU) between Canada and the USA which allows United States Coast Guard (USCG) teams to operate from RCN ships. Op *Caribbe* is carried out both in the Caribbean and in the Eastern Pacific.

JIATF-S is a large U.S. task force made up from U.S. federal departments of Homeland Security (mainly USCG), Treasury, State, Justice, and Defense. It is headquartered in Key West, FL, and reports to United States Southern Command. JIATF-S "detects and monitors illicit trafficking in the air and maritime domains to facilitate international and interagency interdiction and apprehension."[1] To achieve that, JIATF-S also provides all-source intelligence for the mission and coordinates surveillance of air and sea traffic.

Collectively, every year partner nations intercept and seize millions of dollars of illicit drugs and play a major role in suppressing trafficking in international waters and airspace. This helps control and disrupt drug trafficking and organized crime in South and Central America, limiting the amount which finds its way to streets in North America. While attending the Inter-American Naval Conference (IANC), the Commander of the RCN tweeted that "…during the pandemic year Canada has completed its 75th @jiatfs

LCdr Jeffrey Anderson is the Commanding Officer of HMCS *Summerside* and was Commander Maritime Task Force Caribbe during his ship's 2020 deployment. This article is based on the presentation given virtually while 'in theatre' on 23 November 2020 to the Canadian Leaders at Sea Program, as part of the RCN strategic outreach speaker series.

Op *Martillo* deployment, what @CFOperations call Op *Caribbe*, since 2006. @RoyalCanNavy has delivered >2300 sea days to the op in same period - generating an impact that Cdns track & celebrate!"[2] Over that past 14 years, the CAF has contributed to the disruption or seizure of approximately 105 tonnes of cocaine.[3] Participation and successes on Op *Caribbe* are effective in demonstrating Canada's commitment to support efforts to address security challenges in the region and to strengthen ties with partner nations.

When deployed for Op *Caribbe*, the CAF participates strictly in a supportive role. RCAF Aircraft, primarily CP-140, engage in surveillance and tracking. RCN ships – often with embarked USCG Law Enforcement Detachment (LEDet) using the MOU mentioned above – operate in international waters and are tasked with locating and tracking vessels of interest. When tasked, ships position such that the LEDet can approach and intercept suspect vessels in order to board and conduct law enforcement operations.

Pre-Deployment

How does a ship get ready? An RCN warship is a self-contained, flexible, and agile platform with a crew capable of conducting a wide spectrum of tasks from firefighting and damage control, to assisting in Search & Rescue (SAR), to combat operations. To achieve that, sailors must complete individual and team readiness training. Sailors also need to ensure their own personal readiness. The ship itself must undergo a comprehensive maintenance period and technical checks as well to ensure it is at the height of readiness. In normal circumstances, this is a routine set of challenges which the Navy successfully completes often. COVID-19, however, set additional obstacles for HMCS *Summerside* and those who support the ship and crew in these preparations.

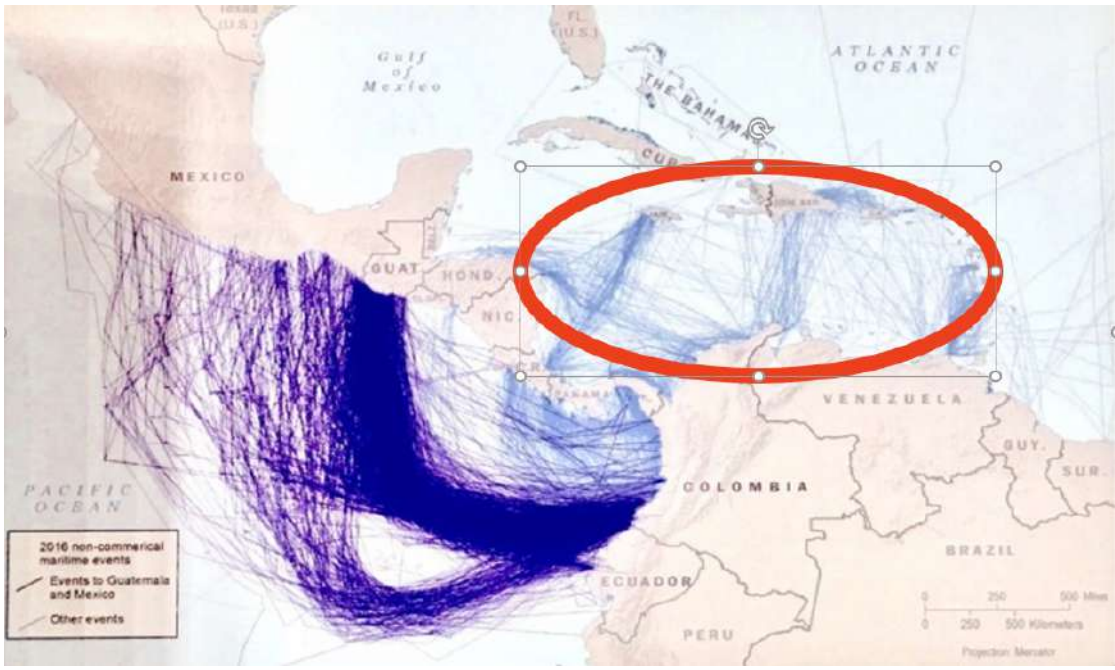
As HMCS *Summerside* prepared, some of the new obstacles were obvious: certain places were closed for public health concerns; gatherings required special planning and were limited in attendance; sailors'

family care plans were disrupted by travel bans and isolation requirements; parts were slower to arrive due to regional, national, and international supply chain disruptions; and special precautions prior to departing would be necessary to ensure the ship's company was healthy. Other obstacles became apparent as the planning progressed, such as pre-planned responses to dealing with suspected cases at sea and precautions required when conducting boarding operations. All of these new factors required assessment and careful planning to minimize the risk of infection while maximizing efficiency and effectiveness in the COVID-19 environment restraints and constraints. With sound organizational skills, clear communication, and innovation on the parts of many, HMCS *Summerside* met all requirements and sailed on time.

Deployment

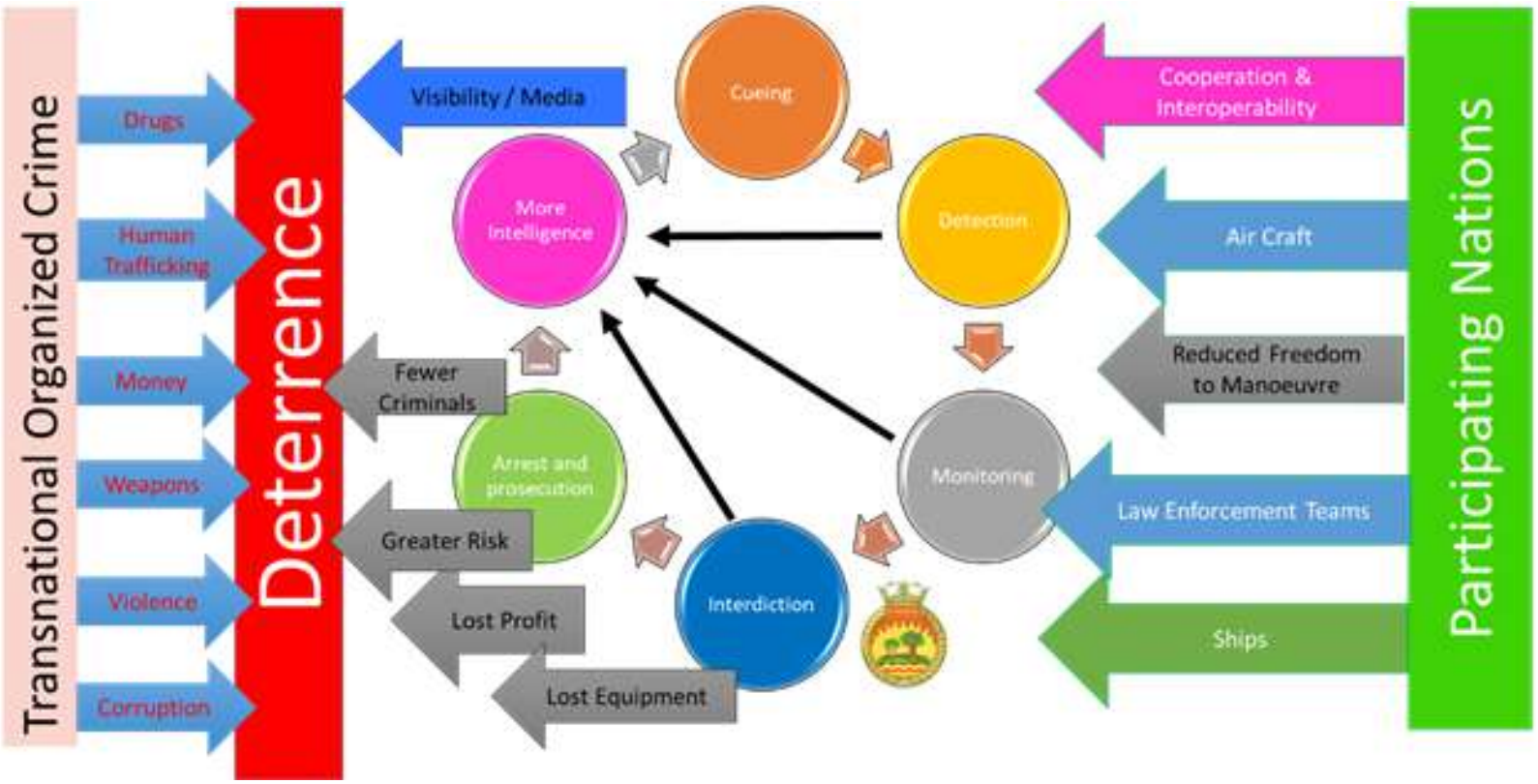
Even the departure was heavily influenced by COVID-19 precautions. The jetty, normally filled with family and friends for a sendoff, was quiet. His Honour The Lieutenant Governor of Nova Scotia, the Commander of Canadian Fleet Atlantic, a small number of other officers, a public affairs team, and two line handlers were all that were on jetty. A single camera captured speeches as well as the departure and live-streamed it to Facebook. Despite the small audience, the live-stream provided the opportunity to share the event with a wider audience. While HMCS *Summerside*'s crew was only 38 personnel, it is somewhat remarkable that there was a member on board from every province and one territory, giving HMCS *Summerside* a sea-to-sea-to-sea ship's company!

After departing Halifax, HMCS *Summerside* proceeded south at best speed to pick up the assigned LEDet in Miami. Hurricane Epsilon had recently passed Nova Scotia, and other weather was forecasted off Virginia but thankfully the passage was made without encountering any significant weather. As the ship arrived in Miami it felt like any other port visit at first. There was the excitement of seeing skyscrapers appear before the land they rest on, and the flurry of activity to get the ship ready to go alongside. As we entered the port we could see boats, ferries, large ships, and on the boardwalks were people, but in reality, this visit was to be very different than others we remembered. Here, no one was allowed ashore except to accept rations and supplies and – when the jetty was clear of other people – the ship's company were permitted ashore to jog near the ship. However, being early in the deployment and still having integration work to be done once the LEDet was embarked, made it easy to accept.



HMCS *Summerside* sailed on the afternoon of 2 November after embarking the eight-person LEDet. The weather was not conducive to boat operations, so the time was spent table topping scenarios and proceeding to the area of operations. As can be seen in the chart showing non-commercial maritime traffic in 2016 , the greatest traffic is in the Eastern Pacific (EPAC). There is significant traffic in the Caribbean as well, but the distance is shorter with more opportunities to use islands or shallows to a smuggler's advantage.

HMCS *Summerside* patrolled within the red circled area on the chart. But some perspective is required to



fully understand why this mission is intelligence-driven. By way of example - the Caribbean Sea is 4.2 times as big as Saskatchewan. Imagine that you have been tasked with intercepting a person going from Alberta to Manitoba. You do not know when or where they are crossing exactly, but you must find them … where do you go?

This is the problem space of Op *Caribbe*. To help a reader understand this, I created a flow chart, somewhat adapted from Evan Munsing and Christopher Lamb's work in "Joint Interagency Task Force–South: The Best Known, Least Understood Interagency Success." Above, we see the cycle they describe of cueing, detection, monitoring, interdiction, arrest and prosecution, more intelligence, and thus better cueing. The bubbles were originally depicted as a continuum, but here a circle better represents it with many points further feeding the bubble of "more intelligence", resulting in better cueing.

Ongoing Mission Management and Results

Participating nations work together, committing resources to the common effort with the goals articulated above. While there are clear and tangible results in terms of seizures and arrests, there is also the harder to quantify effect of deterrence. But ultimately this is what is necessary to achieve real progress against Transnational Organized Crime in a holistic manner: effective deterrence.

While deployed, the ship's Company must maintain their readiness level, as well as keep the ship well maintained and conduct repairs when necessary. To achieve this HMCS *Summerside* conducted drills and training. However, another component of readiness is managing the ship's routine and ensuring that people get the rest they need. Good meals and physical activity is encouraged as a means of staying fit both physically and mentally. Vigilance and alertness are required on watch, but must be supported by the opportunity to rest and have as much predictability as the circumstances permit. This balance is key as a new tasking could come at any time, and a VOI (Vessel of Interest) could be discovered at any moment.

In order for the Team to truly relax then, the ship must go alongside. HMCS *Summerside* went alongside in Willemstad, Curaçao between patrols to fuel, embark rations, receive parts necessary for repairs which were required, and to get some rest. A portion of the crew is on duty each day alongside for security and to respond to any emergencies, but the

rest of the crew can relax and get a full night's sleep. Between patrols we were also able to recognize sailors for achievements which can only be completed at sea: on-the-job training package completions and meeting higher sea service milestones. Additionally, I had the pleasure of promoting my Coxswain (the senior non-commissioned officer aboard) to Chief Petty Officer Second Class.

While alongside, the crew was again required to remain aboard at all times except for jogging on the jetty when it was clear. Sailors certainly missed the opportunity to go ashore and explore. Most sailors relish their time ashore to sight see, to buy souvenirs for themselves or for their family and friends, and/or to have an opportunity away from "work" and have some of that liberty which people enjoy. Everyone understood the risk and the necessity for the precautions and despite the collective disappointment of being confined to ship, there were no direct complaints about our circumstances. Normally, while exploring a foreign port the team splits up into small groups based on interest or activity. Here, we had only ourselves for company and entertainment. People were making use of wifi and cellular phones to connect with family, friends, and the world. Crew members played cards and games together, and in the evening, sundowners were hosted on the sweep deck for the crew to enjoy the sights together. Later a sing-along would be had. It might not have been the port visit one would have hoped for, but the Team made the most of it, kept spirits up, recharged their batteries, and got to know each other better.

HMCS *Summerside* completed a second patrol before returning to Miami to disembark the LEDet. Unfortunately, no intercepts were made and no drugs were seized on this deployment. However, during that same time our partners had more success. While we would have loved to have returned to port with a large seizure of illicit drugs, our participation nonetheless had a positive impact. Honing our skills, building and improving our capabilities, and gathering useful intelligence to assist the overall mission are all important ingredients to overall success. The greater number of surface vessels searched gives greater flexibility, casts a wider net, and increases the likelihood of a ship being in the right place at the right time. That wider net, and public knowledge that ships are on patrol, results in greater deterrence which, as noted, is a key component in the efforts to counter illicit trafficking by transnational organized crime.

Representing Canada on the world stage in this multinational partnership is an honour. The Crew demonstrated amazing resiliency dealing with the added difficulties of deploying in a COVID environment and remained #ReadyAyeReady on #OpCARIBBE. Sailor profiles of some of HMCS

Summerside's crew are available on the ship's official Facebook page as well as photos and videos made during the deployment. Additionally, the CO is on Twitter as @SummersideCO. Please be sure to follow #HMCSSUMMERSIDE on our adventures as we share our part of what your Navy is up to.

Notes

[1] Joint Interagency Task Force (JIATF) South, "About Us,"https://www.jiatfs.southcom.mil/A

[2] VAdm Art McDonald, Commander RCN, tweet made on 25 November 2020 available at https://twitter.com/Comd_RCN/status/1331460779091111937

[3] Canada, DND, "Op Caribbe," 3. https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-caribbe.html

The Naval Museum of Alberta

Scott Hausberg and Bill Wilson

Cdr (Ret'd) Scott Hausberg is the current president of NMAS. He served five years in the Naval Reserve as a maritime surface officer and 20 years in the Regular Force in naval logistics.

Capt(N) (Ret'd) Bill Wilson served in HMCS Ottawa II as a gunner in WW II, is a former CO of HMCS York and was one of the driving forces behind the creation and expansion of the NMA.

The Naval Museum of Alberta (NMA) is the largest and most complete naval museum in Canada. This surprises many people, as few associate the Navy with a part of Canada that is landlocked. In terms of size, the NMA has approximately 12,000 square feet of exhibit space. This dwarfs the display areas of other naval museums in Halifax, Quebec City, Winnipeg, Vancouver and Esquimalt.

As to content, the size of the museum facilitates the display of large artefacts, and the NMA has the largest collection of major naval weaponry of any museum in Canada:

- 3" 50 and 3" 70 naval mounts
- Twin and single 4" naval guns
- 12 pounder naval gun (the single 4" and the 12 pounder are both CPR built guns made in Calgary at the Ogden Shops)
- Anti submarine warfare equipment including depth charges, hedgehog mortars and a limbo mortar,
- Three naval fighter aircraft: a Supermarine Seafire, a Banshee jet and a Hawker Sea Fury,
- RIM 66 Standard surface-to-air-missile (and anti ship missile) used on the Tribal Class destroyers,
- Reproductions of a Corvette wheelhouse, bridge, and mess deck,
- Two working submarine periscopes (*Grilse* and an O-boat)
- A propellor from HMCS *Huron*
- An anchor from HMCS *Protecteur*
- 18 and 21 inch Whitehead torpedoes and a Mk 48 torpedo

In addition to the large items, the NMA includes many model HMC ships from the inception of the RCN to the current day. The collection also includes a rare type K four rotor Enigma machine, a movie theatre, hundreds of cap tallies and many uniforms, accoutrements and naval souvenirs.

A popular local attraction, the NMA sees about

46,500 visitors per year, of which 10,000 are part of school or education groups. The NMA is also physically connected to the University of Calgary's military library and archives, furthering its educational mission. This facility is a researcher's dream and includes the Ken Macpherson photo collection and the John Burgess archival collection.

So, you may wonder, how did such a large and comprehensive naval museum end up located in land locked Calgary? Let us tell that story.

In 1981, the naval community of Calgary consisted of HMCS *Tecumseh*, which provided accommodation for RCSCC *Undaunted*, NLCC *Captain Jackson,* and NLCC *Jenny Wren*, and branches of national organizations including the C&PO's Association, Naval Officers Association, Royal Canadian Naval Association, Canadian Naval Air Group Association and the Canadian Merchant Navy Association. The total membership using HMCS *Tecumseh* was estimated at about 700.

In 1981, most of *Tecumseh* was destroyed by fire. On the site at the time were three old and weather-worn naval fighter aircraft, a Supermarine Seafire, a Hawker Sea Fury, and a Banshee jet. Fortunately these, along with some valuable artifacts, survived the fire. The CO, Cdr Bill Evelyn, and the XO, LCdr Laraine Orthlieb (later to become the first female flag officer in the Canadian Navy), with the support of the naval community, fought to have *Tecumseh* rebuilt on site. The new HMCS *Tecumseh* was opened on the same site in 1987.

The HMCS Tecumseh on fire May 3, 1981

The Tecumseh Historical Society was formed in 1984 to build a structure to protect and preserve the aircraft and artefacts that survived the fire. In other words, it was decided to build a museum. It would be used to educate the public on the contributions of the RCN to Canada. The plan was for a pre-engineered structure designed at no cost by retired Squadron leader Jack Elvis, DFC.

The first order of business was to raise $300,000 to build a 6,400 sq foot museum structure. Massive garage sales, bottle drives, a car raffle, the City of Calgary, the Alberta government, individual members such as Merritt Chisholm and many corporate donations helped the Society to reach its goal.

The Society also set out to collect artefacts and memorabilia to go in the museum. Display equipment was obtained from other museums and local corporations such as the Glenbow Museum and Eaton's department store.

The aircraft were in poor shape after many years outside and a little scorching from the fire. With the help of the Aerospace Museum of Calgary, CFB Calgary, CFB Edmonton and the Southern Alberta Institute of Technology, they were all restored. Large artefacts were also located in Canada, the United States, the UK and South Africa and were transported to Calgary. Museum volunteers put in thousands of hours to restore many of the artefacts.

Finally, in 1988, the Naval Museum of Alberta

The original Naval Museum of Alberta in 1988

opened its doors. It was open to the public seven days a week and staffed with 65 volunteers. Fuelled by extensive media coverage, the NMA was a success and the naval community grew to approximately 1,200 with the addition of two new cadet corps. In 1994, it was decided to expand the original structure by a further 4,000 sq ft to provide for addition artefact displays, curator's office, library, etc. This led to another fundraising drive for $193,000. The construction of the expansion was completed in 1996.

While the NMA was a success by almost any measure, an opportunity arose in 2002 to build a new NMA as part of The Museum of the Regiments complex (which housed the museums of the PPCLI, LdSH, Calgary Highlanders and KOCR). This expansion would eventually include an Air Force museum and the University of Calgary military library and archives. The primary benefit of building a new NMA was being able to expose many more people to Canada's naval history. The existing NMA drew annual attendance of 7,000. As part of what would be renamed The Military Museums, more than 40,000 people per year would visit the NMA. In addition, the new NMA would be even larger than the existing NMA,

More fundraising ensued and then more construction. The last challenge was to tow three vintage airplanes four kilometres down a major city thoroughfare. Finally, 20 years after the founding of the NMA, it re-opened at its current location.

The NMA is supported by what used to be the Tecumseh Historical Society and is now called the Naval Museum of Alberta Society (NMAS). NMAS owns most of the artefacts within the museum, operates a workshop in the old NMA building and raises funds for the creation of new exhibits and the upgrade of existing exhibits.

NMAS currently has a membership of 140 members, many of whom volunteer in the workshop, at casinos, at the museum and on the Board of Directors. For decades, NMAS has put out a quarterly newsletter, The Ensign, which details the happenings at the NMA. Recently, The Ensign has been incorporated into the Navy Calgary Newsletter in a move to unite the Calgary naval community.

NMAS is always seeking new members amongst those who support the preservation of our naval heritage. Membership includes free access to The Military Museums and the quarterly Navy Calgary Newsletter.

In conjunction with this article, NMAS is offering half-price memberships to Starshell readers until the end of April. Go to *navycalgary.ca*, click on the "Join Us" link and enter the code "Starshell", if you would like to join.

RCAF CH-148 Cyclone helicopter from 12 Wing Shearwater, prepares to conduct a hoisting exercise with HMCS Goose Bay during Intermediate Single Ship Readiness Training (Photo: MCpl Manuela Berger, Canadian Armed Forces)

NSNAC/CNMT/CNS limited Remembrance Day service at the Halifax Memorial

Len Canfield, NSNAC

"We must never forget them"

With 2020 Remembrance Day ceremonies affected by COVID-19, the Nova Scotia Naval Association of Canada (NSNAC) and the Canadian Naval Memorial Trust (CNMT) were joined by Commissionaires Nova Scotia (CNS) in conducting a limited service at the Halifax Memorial (commonly referred to as Sailors Memorial) in Point Pleasant Park, Halifax.

Public health protocols may have limited the number of participants but it did not detract from the recognition and honor accorded all those who served and made the ultimate sacrifice.

Prior to HMCS *Scotian* conducting a limited service at the 11th hour at the Halifax Memorial the NSNAC and CNMT that maintains and operates HMCS *Sackville*, Canada's Naval Memorial, along with CNS held a limited service at 9 a.m.

Commodore Bruce Belliveau (ret'd), chair of NSNAC in his remarks drew attention to the striking memorial that is highly visible to ships entering and leaving the historic harbor. The memorial's 12-metre tall Cross of Sacrifice stands on an octagonal platform that bears 23 bronze plaques inscribed with the names of more than 3,000 veterans who lost their lives during the First and Second World Wars.

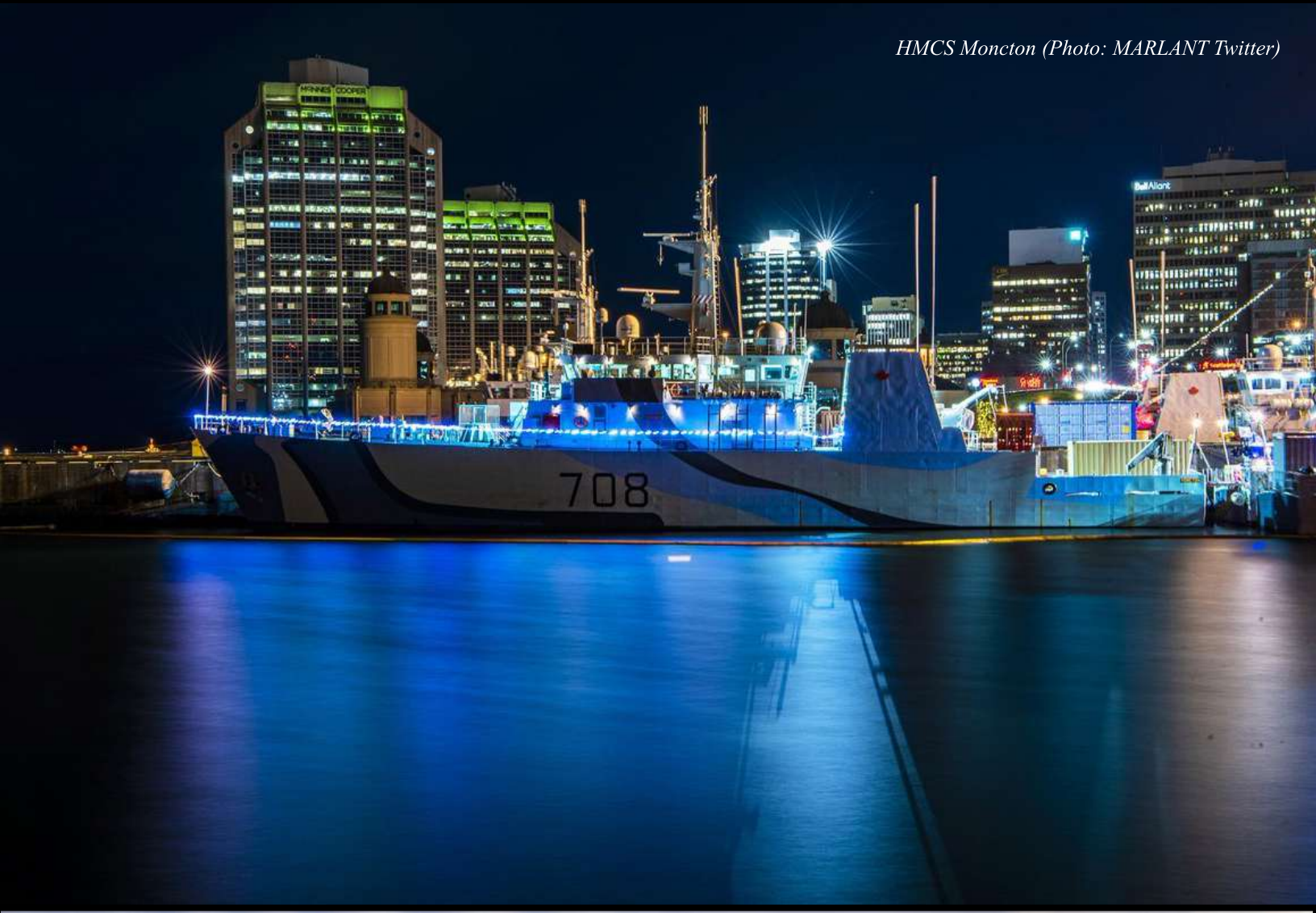
"We must never forget them … they made the ultimate sacrifice so that others may live free. We need to keep faith with the fallen forever and to explain to children the

Chaplain Charlie Black offers a prayer during a limited Remembrance Day service at the Halifax Memorial, Point Pleasant Park, Halifax

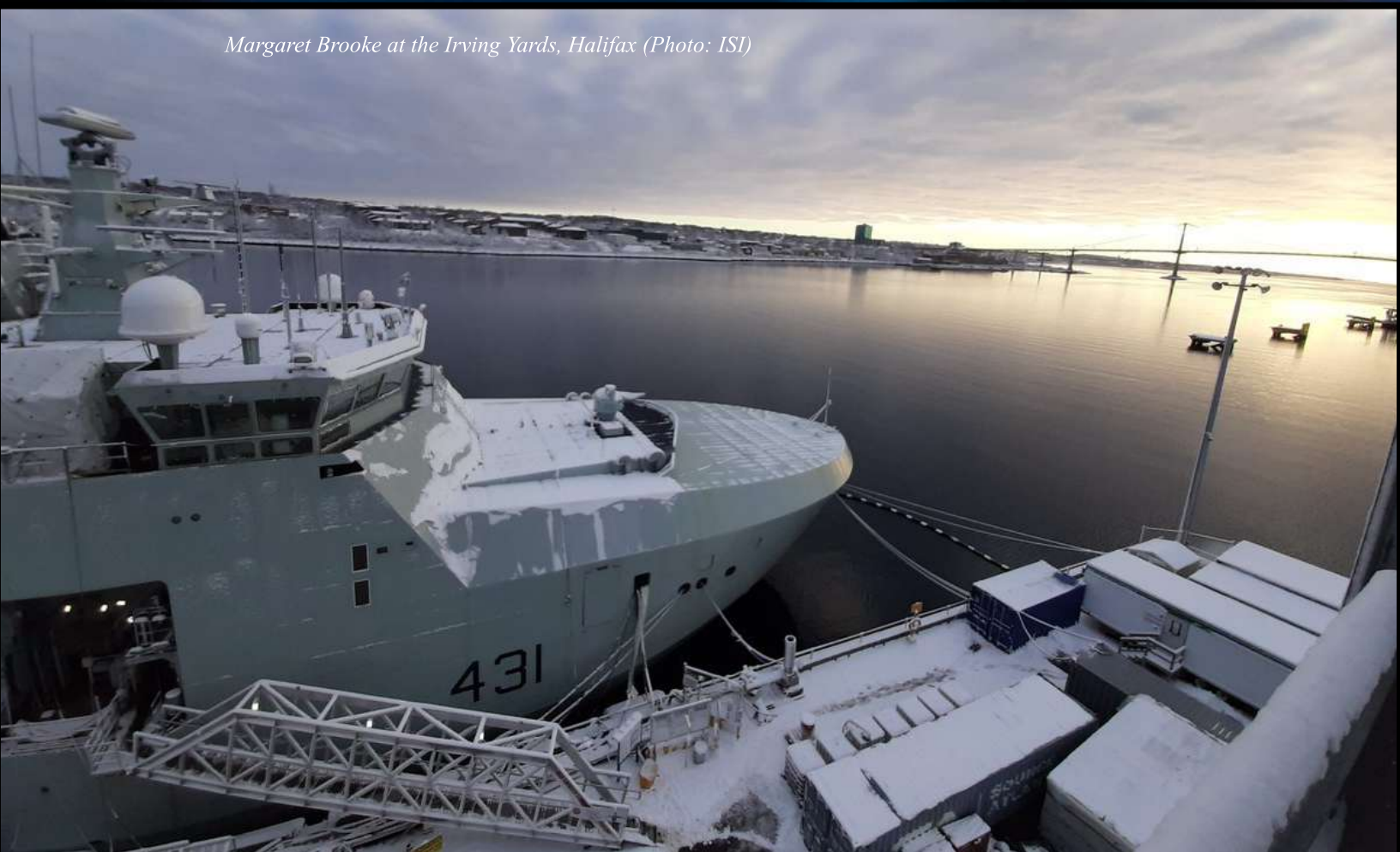
need to keep this faith," he said.

Capt(N) Bill Woodburn (ret'd), chair of CNMT offered the Naval Payer and Chaplain Charlie Black reflected on the wartime sacrifices of Canadians. He read surgeon John McCrae's immortal poem "In Flanders Field" written in 1915 during the battle of Ypres and noted that more than 60,000 Canadians lost their lives during the First World War. During the Second World War one million men and women served in the military and more than 45,000 gave their lives in the fight for freedom. In closing he offered a prayer for those who continue to serve Canada.

Several wreaths were placed at the memorial including NSNAC, CNMT/HMCS *Sackville,* represented by CPO Pat Devenish (ret'd) and Cdr Garry Reddy (ret'd), and CNS, represented by Cdr Rob Rounds.



HMCS Moncton (Photo: MARLANT Twitter)



Margaret Brooke at the Irving Yards, Halifax (Photo: ISI)

Vice-Admiral Craig Baines' Flag Hoist Signal

As I today assume command from Vice-Admiral McDonald, I would like to recognize the significant leadership that my shipmate has provided to the Royal Canadian Navy (RCN) throughout his command and through these unprecedented times. I also want to state what an honour and a privilege it is to become the 37th commander of the Royal Canadian Navy. The greatest part of this honour is continuing to serve with the outstanding Canadians who wear a uniform on behalf of their country and the public servants who support them, often while working in hazardous environments far from home.

In my first message to you, the RCN, I wish to be clear and concise on where I will focus my energies and on my initial priorities. First and foremost, the keystone objective I want to articulate is that of "respect". Respect for the RCN, respect for yourself, and most importantly, respect for your fellow shipmates. Our strength is in our diversity, and that strength hinges on greater inclusion. If we respect others as we respect ourselves, we will be the best organization we can be.

In support of this keystone objective, and in addition to our ongoing innovation in the areas of data and digitization (the digital vision that will enable everything we do), there are four over-arching areas/themes that will be a continuing priority going forward (known by the shorthand of "S3Charlie"):

a. sailors, public servants, and their families;

b. ships and submarines;

c. service; and

d. culture.

First, our sailors, public servants and families. I will always focus on the work and life experience of our Defence Team and the families that support them. What you do is important and the lifeblood of all of our preparation, readiness and operations; your individual preparedness creates readiness which allows us to manage the systems of systems that make up the RCN. Material capability is imperative, but this requires professionally trained sailors and public servants to provide operational effectiveness as its output. Ensuring you are looked after and heard will ensure a more productive and effective workforce.

Second, our ships and submarines. While

continuing with the great work of Vice-Admiral McDonald and the broader RCN and Department of National Defence team, we will generate combat effective units of the current fleet and continue to re-capitalize our world-class navy for the challenges of today and tomorrow. Some of these challenges are known and some will only reveal themselves in time. The development of future capabilities and the corresponding training environment needed to meet these advanced capabilities is pivotal to ensure that the RCN can continue to operate in an uncertain environment against the potential threats and attacks on Canadian interests and values.

Third, our service. I will endeavour to put the service to our navy and to our country ahead of ourselves as we continue to ensure we are Ready to Help, Ready to Lead and Ready to Fight. We are warrior professionals that need to stand ready for whatever awaits us and we must do so by managing our training and people as effectively as possible.

Finally, our culture. As I mentioned at the beginning, in wanting us all to make "respect" our keystone objective, I will focus on the RCN culture and the culture change initiative commenced by my predecessor. We need to move forward together to root out unacceptable behaviours within our ranks, inequalities in our customs and traditions, and unequivocally take action where it is required. We must be the best we can be; the best Canada has to offer. Together we will learn, we will act, and we will be better. Respect for everyone will be our abiding objective, all while maintaining a potent warrior professionalism.

I look forward to working with, and eventually seeing, all of you (virtually or in person), in the days and weeks ahead as we work collectively for the good of the service, the good of the Canadian Armed Forces and ultimately the good of our country.

Vice-Admiral Baines,
37th Commander of the Royal Canadian Navy

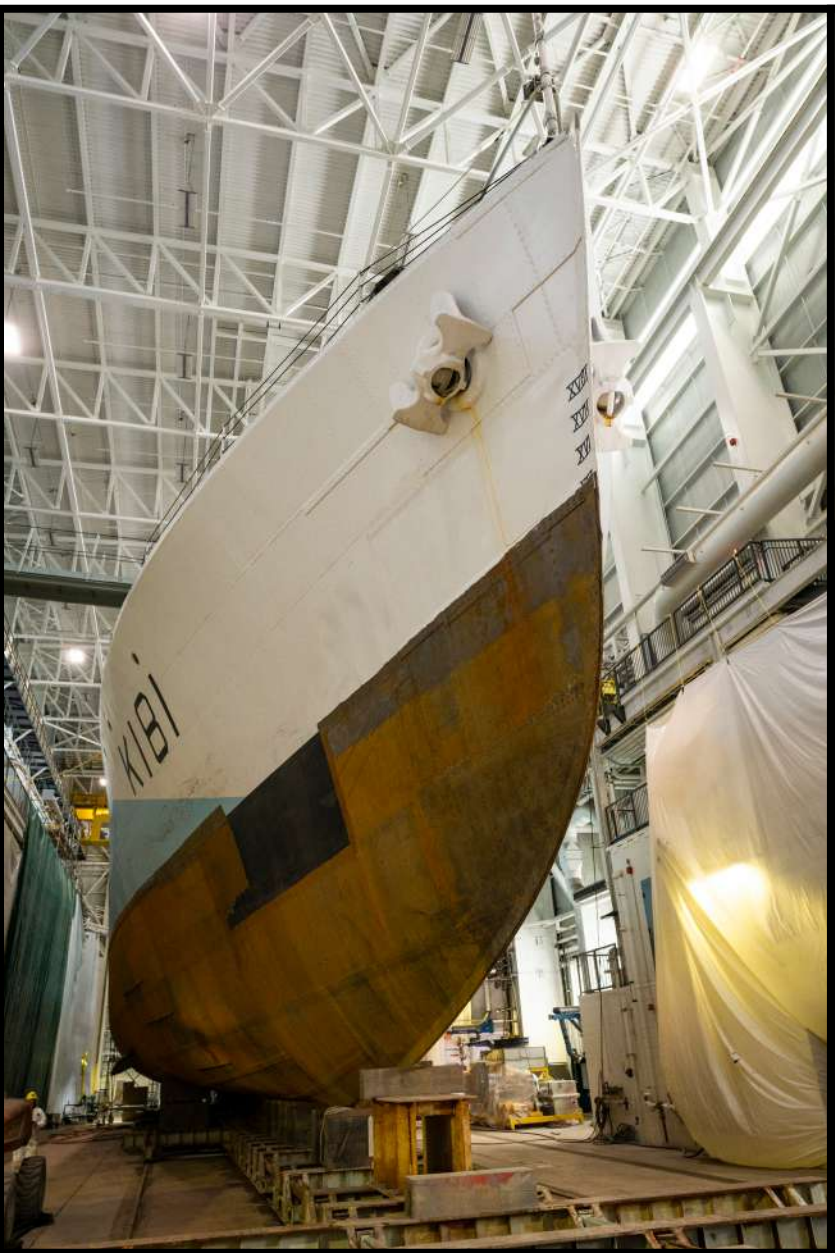
Photo: Canadian Armed Forces

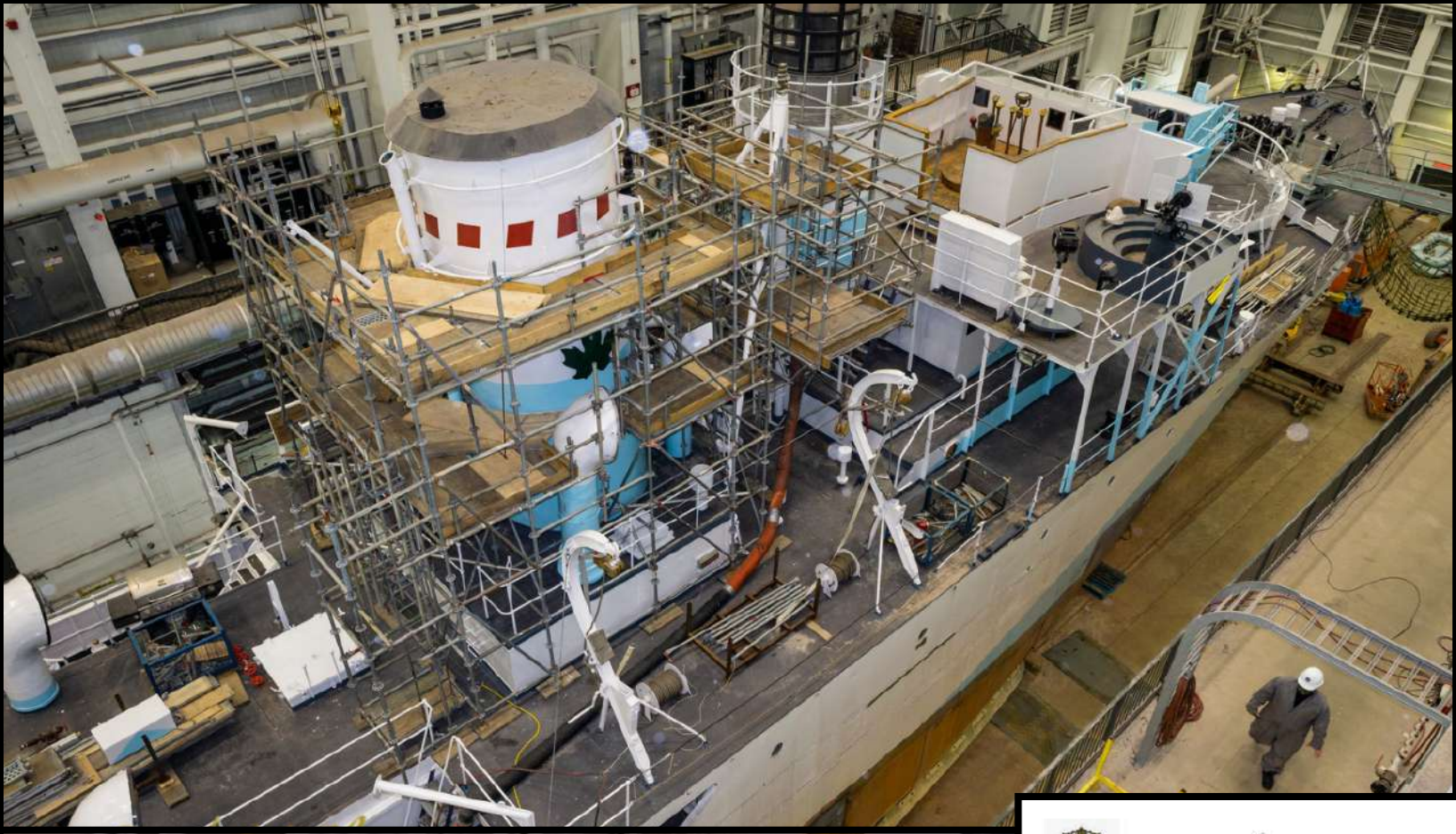
HMCS *Sackville* gets a Makeover

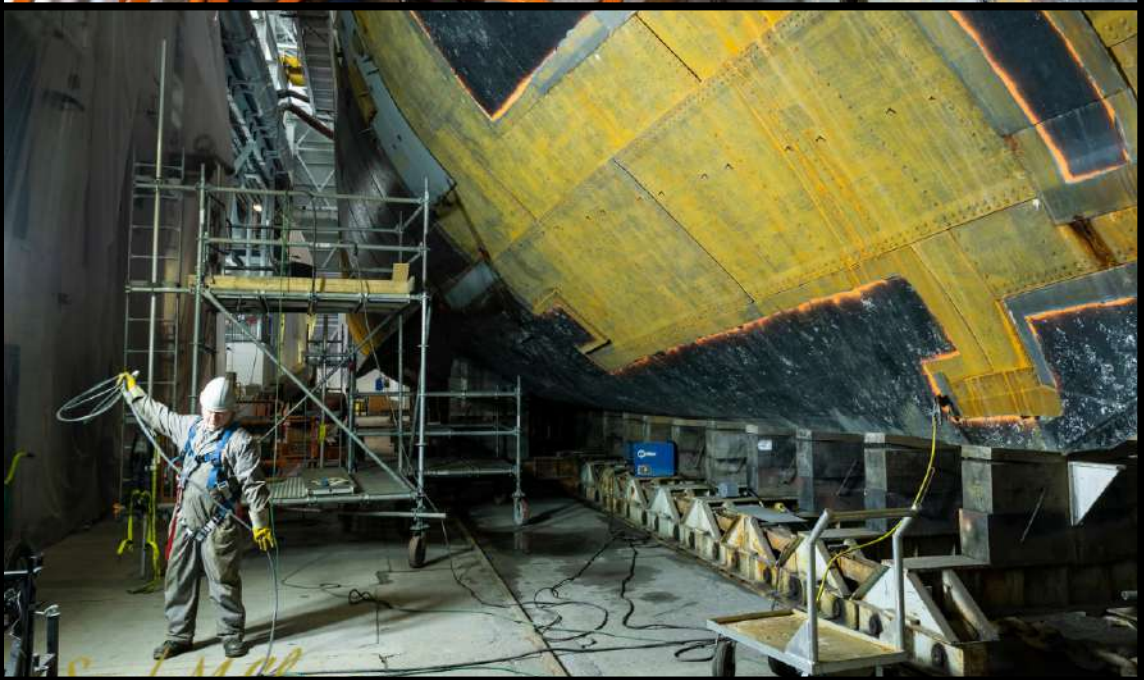
Sandy McClearn, P.Eng., PMP, LEED AP

Launched as part of emergency building programs during the Second World War, the Flower Class corvettes were never intended to last 80 years. And yet, HMCS *Sackville* has persevered, not only escorting convoys during the war but for many years afterwards serving in the RCN's auxiliary and research fleet. With still more years afloat since the early 1980s as Canada's Naval Memorial, some of her hull plating is getting a bit thin in places, and in 2018 she was dry-docked within the Navy's Submarine Maintenance Facility in Halifax for some much needed reinforcement of her hull plating. While the most critical of the problems were addressed during that refit, more work remained, and *Sackville* returned to the maintenance shed in the autumn of 2020 to complete the cladding of her entire hull below the waterline with new ¼" steel. This work will continue into Spring 2021, and it is expected that the ship will return to the Halifax Waterfront for the 2021 summer season. While it is projected that this current refit will allow the ship to remain afloat for another 10 years, the Canadian Naval Memorial Trust has launched the "Just For The Hull Of It" campaign to raise funds for the actual replacement of all hull plating below the waterline in order to preserve the ship for the long term.

Photos by: Sandy McClearn







CANADA'S NAVAL MEMORIAL | MÉMORIAL NAVAL CANADIEN

HMCS SACKVILLE K181

Just For The Hull Of It Campaign

Canadian Naval Memorial Trust
P.O. Box 99000 Stn. Forces
Halifax, NS B3K 5X5

RED TEAM

GLOBAL DEVELOPMENTS FROM COMPETITORS & ADVERSARIES

Russia Sets up Shop in Sudan

In December 2020 it was announced that the Russian Navy had secured a deal with Sudan to establish its first naval outpost in Africa, allowing Russia to station four ships, including nuclear-powered vessels, and up to 300 personnel, at Port Sudan. The agreement is renewable for 10 years, with no financial compensation. Russia will also be permitted to transport weapons and other supplies to the base through Sudanese airports. According to a Chinese language source, Sudan first proposed hosting a Russian base in 2017, "as a counterbalance 'against aggressive acts of the United States.'"

This agreement is a significant development as it provides Russia with a strategic foothold along the Red Sea, aiding in their recent efforts to ramp up a naval presence in the Mediterranean. The Russian Navy has already established a major base at the Syrian port of Tartus, which is currently the only Russian naval base outside the former Soviet Union. The Red Sea is a strategically important region. One of the world's busiest waterways, it links Asia with Europe and facilitates the transit of nearly 10% of the world's trade. The base represents a recent push by both Russia and China to increase influence in the region, with China opening its first overseas base in nearby Djibouti in 2017.Along with the base in Sudan, the Russians are looking to further expand their reach in Africa, with additional bases in the Central African Republic, Egypt, Eritrea, Madagascar, and Mozambique.

Disruptions in the Strait of Hormuz

Recent attacks in the Middle East have provided a reminder that the region remains volatile for merchant shipping. The Iranian Revolutionary Guard's armed seizure of the South Korean tanker *Hankuk Chemi* on January 4 is just one example of the heightened tensions in the region. At the time, the *Hankuk Chemi* was en route from the Saudi Arabian port city of Jubail to Fujairah in the UAE. The tanker's seizure occurred amidst pressure from Iranian officials for South Korea to release approximately $7B in assets frozen in the country's banks due to American sanctions. Disruptions in the Strait of Hormuz remain a constant source of concern, with that narrow waterway serving as the transit route between millions of barrels of oil and the global market. The UAE and Saudi Arabia have both sought alternative routes to bypass the strait and get their oil to market, including through pipelines, though there is no immediate alternative to the tankers that the Iranian government threatens.

The seizure of the *Hankuk Chemi* came less than a week after a tanker off the coast of Iraq, MT *Pola*, noticed a "suspicious object" attached to its hull, which was later determined to be a limpet mine. An Iraqi naval force and explosives team managed to successfully defuse the device. In 2019 the United States blamed Iran for a series of limpet mine attacks on tankers near the strait of Hormuz, accusations which were denied by Iran. These attacks also coincide with the one-year anniversary of the assassination of Irani general Qasem Soleimani by the United States, along with rising tensions between Iran and the US in the final days of Trump's presidency.

FFG(X) artist rendering (Photo: Wikipedia)

BLUE TEAM

GLOBAL DEVELOPMENTS FROM ALLIES & PARTNERS

The USN Buys FREMMs

In April 2020 the US Navy announced that Italian shipbuilding company Fincantieri's FREMM design was selected for the new Constellation class frigates, which will be constructed at Wisconsin's Marinette Marine shipyard. The initial contract of $795.1 USD million covers the design work and the first ship, with an option for the procurement of an additional nine ships. The cost of the total contract with the additional ships will be $5.58 billion and is expected to be re-bid after the first 10 ships are constructed. The price tag does not include government furnished equipment, including a variant of the AN/SPY-6 radar. With the government issued equipment included the cost of the first ship should be in the range of $1.28 billion. Still, there have been some issues with the cost of the vessels. In October 2020, the Congressional Budget Office reported that the Navy underestimated the cost of the first frigate by 40 percent.

The FREMM design, which is Italian for "European multi-purpose frigate," is already in operation with the French and Italian navies. However, the American vessel will feature modifications to accommodate American survivability standards and new weapons and sensors. While the components of the ship are based on an Italian design, Fincantieri and the Navy are working under a congressional mandate to ensure that they are all American. The frigates will operate using a combined diesel-electric and gas propulsion, will have a length of 496 feet, and accommodate 200 crew members, with an expected service life of 25 years.

The propulsion system will be provided by GE Marine, using the company's LM2500+G4 aeroderivative marine gas turbine,

The shipyard plans to commence the construction of the frigate later in 2021, following the completion of a final design review of the plans for the ship, with an estimated completion in the fiscal year of 2026. The expansion is a significant boon for the Wisconsin shipyard, which required a $200 million renovation to accommodate the frigate's construction. Upon completion, the vessels transit the Great Lakes and St. Lawrence Seaway, before entering the Atlantic Ocean.

South Korea Looks to Build a Carrier

In early January South Korea announced that it would launch its new LPX-II aircraft carrier program, based on the ROKN *Dokdo* class amphibious warfare ships. The carrier will be the largest military ship ever built in South Korea's shipyards and capable of accommodating 20 F-35Bs. Construction of the LPX-II carrier is expected to begin in 2021 at Hyundai Heavy Industries, with the launch anticipated for later in the decade.

This announcement follows recent surges in shipbuilding by both China and Japan as those powers look to expand their own naval aviation capabilities in the region. In large measure, South Korea is concerned over China's increasingly aggressive maritime posture. Its growing navy has been matched by its assertiveness in the South China Sea, where it has been testing amphibious assault capabilities while seeking to exclude other ships from international waters.

North Korea too represents a long-term threat to the South, requiring a more robust deterrence posture. Recent submarine-launched ballistic missile tests by North Korea have been particularly concerning and are likely encouraging Seoul to look beyond a defensive maritime posture to a future where it may have to actively hunt North Korean ballistic missile

USN MH-60S is landing on the flight deck of the ROKS Dokdo (Photo: Wikipedia)

A Navy in Transition:
Reflections from an Outsider, Part II

Edited by Michael Whitby

In this, the second part of 'A Navy in Transition' Michael Whitby offers a record of his conversations with Gordon Stead, a Second World War Lieutenant-Commander RCNVR. In part one, Stead recalled his time aboard HMCS Iroquois crossing the Atlantic and operating in the waters surrounding Great Britain.

About the time we left Halifax we were supplied with 'Canada' flashes to be stitched upon the shoulders of our uniforms. With very few exceptions, all of us – crew as well as officers – avoided putting them up. We did not want to be that conspicuous, and this splash of gilt at places on a uniform where no gilt ought to be, simply did not look right. Perhaps it was an idea borrowed from the Army. As well, I think we all thought of ourselves as part of a Commonwealth team in which such distinctions should be muted. No other Dominion used such flashes, although South Africa officers, regular and reserve, all wore straight stripes with an orange square above the curl. We already had 'Canada' on our brass buttons and the 'VMK' – the "Vote Mackenzie King medal," as it was called – to indicate we were overseas volunteers, although many did not put it up unless they had others to go with it. When some potentate from Ottawa or Canadian naval headquarters in London came to visit us, we quickly basted on the flashes and snipped them off again as soon as they had left. We did wear a discreet green Maple Leaf painted on each side of the after funnel.

Hibbard was very conscious of his place on the ladder. After one of the 'monster' escort runs,[1] we were bunched up with sundry other ships in the entrance channel to Liverpool awaiting our turn to enter the port. An RN destroyer came up and made a signal to us, "Indicate name and rank of captain." Hibbard replied: "Commander Hibbard DSC. One stroke one stroke forty-three."[2] Quite unconscious of the hilarity this rhyme was to produce with its reference to the DSC. I think the other ship turned out to be the senior. Later on, this story was repeated to Adams who immediately came back with: "Old Ken Adams weighs a ton, One stroke one stroke forty-one." Hibbard could have done with some of Adams' sense of humour, and Adams with some of Hibbard's experience.

Hibbard was also very excitable under pressure.[3] It was a failing that I, being high-strung myself, could sympathize with and which I have admitted in *A Leaf Upon the Sea*.[4] But Hibbard out-did me – not that he ever mishandled things – and even got into a frenzy coming alongside or leaving dock. No-one not absolutely necessary was allowed on the bridge when entering or leaving port. *Maclean's* [magazine] had a joke section called "Parade" and in one of their issues there appeared a parody on a bit of doggerel used for centuries to teach ordinary sailors safety rules at sea. The *Maclean's* version ran: "When in danger or in doubt, Run in circles, leap and shout."

The VRs in the ship immediately clipped it and posted it on the wardroom notice board, where it was greeted with some hilarity. The RCNs immediately took it down. But there was an almost unlimited supply of *Maclean's* on board and the game went on for quite a little while.

On the other hand, I once watched Adams take the ship out of the awkward confines of the Gladstone Dock in Liverpool soon after he had taken over, languidly leaning over the side of the bridge, issuing his helm and engine orders quietly, and controlling the tug and the linesmen ashore solely by gentle hand gestures. What a drastic easing of tension after

Hibbard's handling in the same and other locations which set off the *Maclean's* incident!

About a third of the members of the wardroom felt the need to let off steam; the rest were rather staid. In Plymouth this 'first team' exchanged visits with other ships, mainly HMS *Ursa* and the Poles, but I do not remember socializing with others in the 10th DF. We had a piano, given us during the previous commission by a destroyer ordered east and later sunk. Jim Saks played it with Willie Hayes on his violin. There were the usual roughhouse games which occasionally wrought some damage to the furniture. Ashore, we lit up the Officers' Club with our rousing songs. In smaller groups we went to dances with our Wren friends at the local golf club and exchanged visits with officers of an Army regiment I had known in Malta. Once a month if in port we held formal mess dinners which Hibbard attended: bow ties, place settings, toasts and so forth.

But this was Plymouth and interspersed with the actions in the Bay. Thereafter our operations were routine, the 10th DF became dispersed,[5] and our bases were quite uninteresting. While it was fun to be at sea and we felt competent, there was not much stimulation. For me, it was a re-run of the situation in the Med as the campaigns wound down. Provided there is some competence, war from a minority position is a much more exciting challenge than when our side is winning.

In this situation, going to Scapa to work with the carriers was a new experience. We knew we had to have this behind us before we dared show ourselves to the veteran USN in the Pacific. While mining the Norwegian Leads was a useful tag-end military operation,[6] I think we all felt we were there primarily to learn. It was not just that the Home Fleet had become a backwater – as in the question in your letter – the whole European theatre had, and the Home Fleet with it, and we did not need to go to Scapa to find this out. In the event, there were some interesting incidents: the carrier operations themselves, a convoy to Murmansk, and the entry into Oslo; perhaps also the frustrating action off Lister Head and, for those still in the ship, the Baltic junket.[7]

As for my adjustment to life in a destroyer after service in MLs, I have no recollection of being bothered by it at the time, although, of course, I knew I had a lot to learn. I had seen enough of ships up to battleships in harbour, socially or for operational consultations, that their routines and general ambience were familiar. I had worked with them at sea and made a point of learning how they operated so as to use them as a model. My three First Lieutenants [in *ML-126*] had all served as ratings in

HMS Ursa

RN ships and my Coxswain was a long-service Petty Officer, so the standard of routines, if in modified form, were all in place when I joined *ML-126* and remained so throughout my time in her. MLs and Fleet ships were all in the same Navy and their jobs were conceptually the same; only the scale and complexity was different. This made the execution of routines more casual in MLs as it was unnecessary, for example, to send a bosun's mate around the decks piping "Hands to stations for leaving harbour;" one just called down the mess deck hatch. On the rare occasions in *ML-126* when I held Requestmen and Defaulters, I followed the standard format, but did so in the wardroom, the only suitable place available. If anything, the job was easier even as the responsibility was greater.

While reflecting on your question it occurred to me that my transition may have been easier because of my background in the Med. The 3rd ML Flotilla was commissioned by a RN officer. It was sent into situations necessitating close formations under constant threat of air attack where the need for sharp attention from all hands was plainly evident even if the boats were run with easy formality. No other ML flotilla that I have heard about had this experience although I do not know whether the others functioned any differently. However, I would think that MTBs and MGBs would certainly be similar to the 3rd in this respect.

HMCS Iroquois

The only time I cleared Lower Deck for this routine was for the reading of a warrant for a Leading Seaman who had gone to sleep on watch.

In my role as a watchkeeping officer in *Iroquois*, I felt no difference as compared with my ML once I had become familiar with the gadgetry on the bridge.

I have given a good deal of thought to the question of being 'Pusser'. What does this epithet really mean? At sea, where the real work was done, I cannot think of any difference between *Iroquois* and *ML-126*. Except in the heat of action, when voices were

sometimes raised above the noise, orders and reports were passed and discussions carried out in a relaxed fashion without regard to rank. The point was to get the job done. I never served in corvettes or frigates, but I can image from what I heard and read that this would have been no different in an efficient escort vessel even if their work may have been, in some degree, more individualistic.

If this is so, are we just talking about protocol in port? If that is what 'pusser' means, it is true that there may be a difference between the smaller vessels and the larger ones. There could be some point in the bigger ships going some way towards following tradition when there is no threat from the enemy, to help maintain a sharpness, that would be ridiculous in the more intimate environment of a corvette or an ML. Apart from Hibbard's occasional excesses which were the product of his personality, I am not aware that the Tribals were more 'pusser' than other naval vessels of their type. And 'pusser', of RN origin, not only has the meaning of being "proper," but was more often used in the sense of 'pusser's stores," ie standard issue naval property.

However, in the former sense, most of the differences I can think of had practical purposes in a complex vessel with three hundred or so men in her; double manning of the gangway, piping the routines of the day, regular rounds and so forth. The flourishes were incidental. Thus, the degree of 'pusser-ness' was a function of the size of the ship in the RCN as in the RN.

In my view, the fact that this distinction aroused comment in Canada resulted from the impending change-over from one kind of sea warfare to another – from North Atlantic convoy escort to Fleet work in the Pacific – which required a different type of Navy, and this was new to most people serving in our predominantly escort fleet. This situation had existed all along in the RN which had been responsible for both, and while recognized, was not thought all that remarkable.

I think I have covered the questions in your letter except for those about Coughlin and Hayes. Neither of them was the sort to set off anecdotes such as I have related about Hibbard. Coughlin was a strong, well-rounded personality, enthusiastic and vigorous. More controlled than Hibbard, they were on the same wave length and were good friends.

Tony was a hard act to follow and Hayes did not have his presence.[8] However, he did his job earnestly and, in due course, established his position. He was technically competent, blessed with a sense of humour, and was good company.

Perhaps I should try to summarize my thoughts about Hibbard. His was an odd personality; he was respected for his competence but egocentric and not easy to relate to. I do not think he was really liked, except probably by Coughlin, and quite strongly disliked by at least one member of the wardroom. Once established in his good books, I got along well with him, but this relationship was on a purely duty level and lacked warmth.

What does all this add up to? I think it can be said that *Iroquois* under Hibbard's command was not a happy ship, but it was not an unhappy one either. It had a fine crew and adequate officers and did its job with vigour and efficiency. Not bad for a Fleet ship that so soon grew out of a Navy with such small beginnings.

III. Comments

In this section I propose to offer some observations that relate to your questions about attitudes towards the RN by the RCN including RCNVR. First, I want to say something about prior experiences that may have led me to these views.

As an undergraduate at UBC I was a member of the Canadian Officers Training Corps, whose existence was contentious on the campus of the day. I rose to the rank of Company Sergeant Major and passed the Certificate B examinations that qualified me as a Captain in the Army upon achieving sufficient seniority. Following in my Father's footsteps, I was commissioned as a Second Lieutenant in the British Columbia Regiment on my eighteenth birthday. Two years later – in 1933, before Hitler came to power – I resigned my commission to because I could not get along with the dictatorial Colonel who demanded unreasonable sacrifices in the depression years and because I could not afford the mess bills.

When the war broke out, I rejoined the COTC to catch up on the new developments of the intervening years, assuming I would end up in the Army. The Corps was conducting training exercises in the BC Regiment Armories downtown to train UBC graduates who had not been members during their undergraduate years. There were 700 of them. I was welcomed, and with the exalted rank of Lance-Corporal, spent the fall evenings bellowing orders to squads of trainees taking Lewis guns apart by numbers. By Christmas this had palled. I flunked the term exam and dropped out of the Corps, although nominally a member until I joined the Navy as related in *A Leaf Upon the Sea*.

Thus ended my career in the Army for which I may not have been cut out anyway, but I sought to join one of the other Services. For me, this was just as well. Friends of mine in the COTC and the BC Regiment – one the then Colonel and all originally junior to me – were wiped out at Caen.

During and after the War I have often mediated on the differences among the three armed services, my models mainly within the British forces rather than being comparisons between UK and Canadian. Throughout history the objective of the Army was to make machines out of groups of men. The first machine gun was a corps of bowmen or a platoon of musketeers or rifle men. This calls for rigid discipline. In air war, on the other hand, the machine is dominant and the men subservient to it. In this setting, rank hierarchies break down and a Flight Sergeant may be captain of the aircraft with a Flight-Lieutenant as his navigator. Warships lie somewhere in between. The successful ones combine a sense of order with team spirit as do the units of a squadron. This requires a different kind of leadership than either of the other Services and these differences put their stamp upon each Service.

In Canada, as elsewhere in the British Commonwealth and Empire, the Navy is the Senior Service by tradition. But here, and perhaps in Australia, the Army is the largest Service and the one most firmly rooted in the frontier, its mentality and aptitudes, and the one with evident achievements in past wars. It is the Service the Canadian public thinks of first when considering the Armed Forces. It came as a surprise to my younger friends that the Navy was referred to as the Senior Service, which is why I had to interject an explanation in the final draft of *A Leaf Upon the Sea*.

Indeed, in the years between the Wars the Army was an accepted presence in Vancouver. Military parades – complete with bands – through the city streets were regular occurrences on holidays or days of significance to a particular regiment. True, the annual Garrison parades were led by the Navy, but this was a very small contingent and was generally regarded as an exotic element in an Army show. Veterans of the First World War [from all services] were known as "returned soldiers".

Thus, it may be that Army attitudes are representative of Canadian notions of military life and these may have spilled over into the RCN and, especially, the RCNVR. In turn, this could go some way towards accounting for the attitudes I found in the RCNVR in Halifax that were reminiscent of those that had encouraged me to leave the Army. Furthermore, it would have a bearing on relations between the RN and our corvette Navy. There may be a parallel in sport. In rugby, for example, a loose-knit individualistic but cooperative teamwork is required, whereas football is much more regimented.

Having been near-missed by one mutiny [in *Iroquois* in July 1943] and being aware of the RN-RCN differences discussed in this paper, I took an interest in [Commander] Jeff Brock's mutiny [when he was Executive officer of HMCS *Ontario* in 1947] and read the Mainguy Report when it came out.[9] I was then in Ottawa. I had known and worked with Brock before the War. He was then manager of the Vancouver office of Cockfield, Brown & Co., a national advertising firm with a commercial research division. For a year or two I was the research division in Vancouver on a contract basis. I worked on my own and reported to Brock only occasionally on substantially equal terms – which would not be the case were I to become his First Lieutenant – but of course I sized him up. Thus, it was that when I encountered him in Gibraltar, as mentioned in *A Leaf Upon the Sea*, my prior impression of him was a major factor in *ML-126*.[10]

After all this time I do not recall the specifics of Mainguy's report, but whether he made this point or I took this out of what he said I do not know, but I think there was at least a clear implication in his survey of RCN officers in general – not Brock, who was originally RCNVR – that RN training was not suitable for Canadians. At that time RCN cadets went to

England for their Midshipman training, which was predicated on the intake to the Naval College coming from an English class, historically the landed gentry, that was brought up to lead. Putting a different kind of raw material through this process supplied the technical training and the 'spit-and-polish' but could not be relied upon to provide the appropriate kind of leadership qualities that was inbred in the English cadets. This may help to explain the different atmosphere I sensed in the RCN. I was somewhat uncomfortable in it but not unduly bothered because of a feeling of confidence arising out of my seniority and experience. Of course, all this is generalities – there were many fine officers in the RCN – I am merely suggesting that such influences imparted a bias in an authoritarian direction.

It may well be that the use in Canada of a university degree as a screening device for would-be officers was an attempt at an administratively simple criterion for an officer class. If so, it is irrelevant as a measure of "Officer-like qualities," and is bound to produce the wrong answer in many cases.

Part of the question of relationship to another national component of what was then a world-wide Service may have to do with the intimacy of contact. After the War, I was always able to tell whether someone had served as an individual in the UK forces, or in Europe as a member of a large Canadian unit, by whether he liked or disliked the British. In the latter case, contacts would be formal and official with each side recalling after contact only the differences in usually unimportant matters such as accent, the quality of the coffee or whatever. In the former, the isolated individual was obliged to adjust and soon came to accept the British ways and to see new values in them. In my experience, although my British family background and the predominantly British ambience in BC at the time undoubtedly made the adjustment easier. (A small example of this stereotyping with casual contacts occurred in *Iroquois* when the wardroom dubbed my ex-Malta army friends "the Poona majors".)

This is an interesting topic. What I have tried to do is to put down my inexpert impressions of a situation that needs more formal study to do it justice, and maybe to open up some avenues of thought and say something of the climate of the times. Perhaps all it adds to is that armed forces reflect their country and that Canada was then – and may still be – in a state of transition between following the Mother Country's model and developing its own.

Notes

[1] On several occasions *Iroquois* screened former ocean liners utilized as troop transports.

[2] IE his seniority as Commander dated from 1 January 1943.

[3] On account of his excitability on the bridge, Hibbard was known as "Jumpin' Jimmy" throughout the RCN but, as Stead indicates, his shiphandling garnered respect.

[4] After an agitated response to a sudden air attack, Stead remembered, "The whole thing left me shaking with excitement and I wished I could handle these affairs more calmly."

[5] Most of the British destroyers in the 10th flotilla transferred to the Indian Ocean in the autumn of 1944, while Iroquois rejoined the Home Fleet at Scapa Flow.

[6] In the last two years of the war, aircraft from Home Fleet carriers screened by destroyers, carried out a comprehensive aerial mining campaign in Norwegian waters.

[7] See *A Blue Water Navy* for these operations.

[8] Hayes became *Iroquois*' First Lieutenant under tragic circumstances after Coughlin suffered fatal injuries after being slammed into the stanchions by high seas.
[9] Brock was transferred out of *Ontario* after the incident but his career was unaffected.

[10] In January 1942, RN authorities asked Stead if he would exchange positions with Brock as First Lieutenant of a British corvette that was reportedly "unhappy". Stead demurred, but in his memoir did not identify Brock as the officer they wanted to move.

Canadian Naval Heritage

The serialized naval memoirs of the late RAdm Robert Philip 'Bob' Welland DSC & Bar, MiD, psc, Officer of the Legion of Merit (USA), RCN

A Happy and Noisy Note

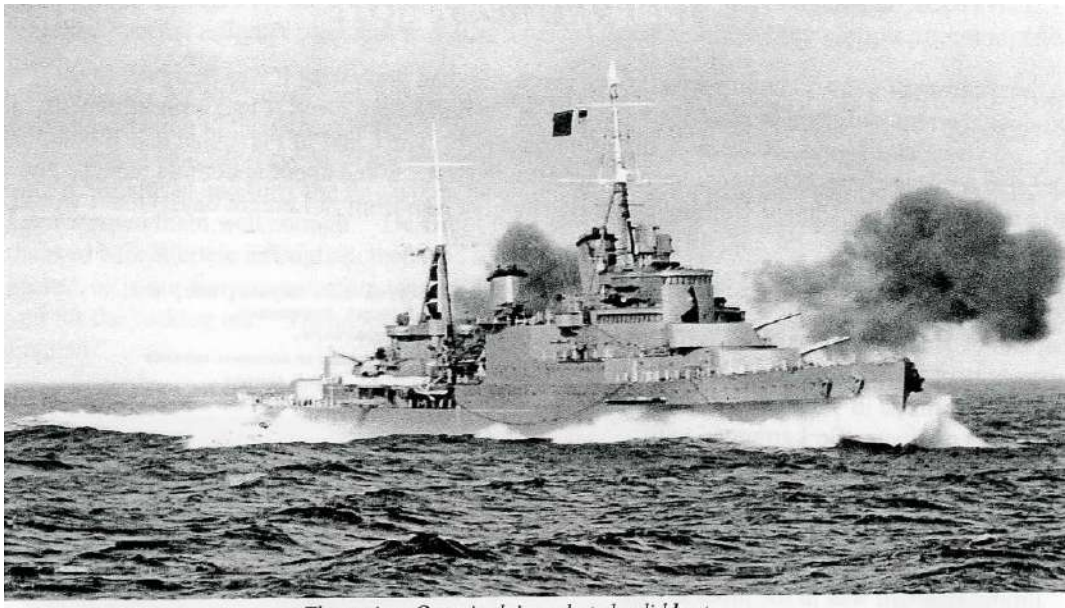
Where last we left off, Admiral Welland had opened the Navy's new training college HMCS Venture ...

In the summer of 1956 Venture was a proven success; it had done what it was designed to do, produce the required number of officers to serve in the permanent force. I had been its captain for two years, and would sooner be doing something else. The Chief of Personnel also thought so and sent a private letter. I had now become accustomed to be asked about upcoming jobs, so had no trouble in telling Admiral Herbie Rayner (Remember him from St Laurent days!) that I would be delighted to be made the captain of the cruiser Ontario.

David Groos was Ontario's captain; Rayner wanted him to relieve me as captain of Venture. It was an agreeable arrangement for all concerned, however I wanted to remain in Venture to see the first class graduate. So I arranged with Dave that we swap jobs on 23 August. I kept the bungalow in the dockyard by mutual agreement; he had his own house in Oak Bay.

Jimmy Hibbard was in the process of retiring, but before he did I invited him to inspect the cadets. This provided the opportunity for the cadets and staff, and me, to give him a mess-dinner. He made an amusing speech at my expense about the Armistice day event with the Governor!

Hugh Pullen took over the Pacific command. This was to be my second session under Hughie. It was said by some officers, and their wives, that to get along with Pullen required only three attributes: an affection for the Conservative political party (easily faked); a predisposition toward the Anglican church (I was christened in one); and a demonstrated enthusiasm for sailing navy-whalers (I liked that anyway - in good weather). Any officer who knew the above would also know that any criticism of the Royal Navy was best avoided. I didn't need to criticize the Royal Navy, I'd heard it as a midshipman from a distinguished member of it, Captain Gus Agar. I'd also experienced their innumerable goof-ups during six years of war (as recounted earlier) and would sooner leave that behind; I had no need to tease Hughie.



The cruiser Ontario doing what she did best.

Ontario had been built in the U.K. she was completed in 1945 just as the war was ending. So she was still an effective ship in 1956. She displaced 11,500 tons, was propelled by steam turbines generating 80,000 horsepower which gave her 32 knots, the crew numbered 700. She was armed with 12 six inch guns in four turrets and these weapons were accurate to a distance of 14 miles. She bristled with 4 inch anti-aircraft guns and also had 12, 40 mm, Bofors. Her sister ships in the Royal Navy had racked up impressive results against Germans and Japanese warships during the war. Seated in my oak chair on the open bridge, sixty feet above the ocean, I was proud to be her captain.

However I suffered from a mild case of conscience; a few years earlier I had written a letter that criticised this ship and her sister, Quebec, as being outside the specialized role of our Navy, to wit, anti-submarine. I had said these two cruisers should be got rid of and replaced by eight anti-submarine destroyers, or alternately by an additional aircraft carrier. I had said that for the same annual cost the destroyers would produce roughly four times the effectiveness against the Soviet submarine threat as would a second carrier. I got a polite reply, signed by the 'Naval Secretary' thanking me for my interest. Whoever wrote the reply was kind enough not to tell me outright to mind my own business.

I heard, privately, that my letter provided the opportunity for like-minded officers in the headquarters to press the issue. But to no avail; there was still a lot of 'Gunnery' influence in the corridors on Elgin street. These two, almost new, shiny cruisers detracted from what our Navy was all about; hunting Soviet submarines. There was no political support for them; the Canadian Ship Builders Association had not built them and would have liked to be building new destroyers, or even a carrier. Then there was the Air Force who wondered, aloud and correctly, what these ships had to do with the Navy's role of anti-submarine warfare. In my view these two cruisers were now in the same category of by-passed technology as were battleships at the start of WWII. Of course my gunnery-officer friend, Bill Landymore and the brothers Pullen, and a dozen other ear-drum-deficient officers disagreed entirely. But maybe they were right - now that I had command of this splendid ship!

My 'day' cabin, just below the teak-planked quarterdeck, was five times the size of *Athabaskan*'s; my dining-room table could seat sixteen. There was sufficient space in the ship for 800, so the living spaces were not crowded with my 700. The officers I was given as heads of departments knew what they were doing, which was a change from my experience in destroyers. The navigator, for example, was a qualified 'N', not some stray lieutenant that I appointed from 'issued' officers because he looked sort of intelligent, like Dick Leir. If I asked a question before sailing, like, "Do you have the foreign currency for Manila?", I was likely to be told that we also had it for Singapore and Hong Kong. So instead of being a teacher, which is a major role of any destroyer captain, I could easily have cast myself in the role of critic - like Captain Bligh.

A week after I took over we made a visit to Vancouver. This was the first occasion for me to handle the ship. I got her away from the dockyard wharf in Esquimalt and clear of the harbour with no trouble; she behaved as I expected. Because it was a short trip we were using only two of the four engines and only half the boilers were on-line. As we passed under the spectacular Lions Gate bridge my navigator, Brian Judd, reminded me that she was a bit slow responding to asternpower with only 40,000 horse-power available. I thanked him and steered for the wharf assigned in Vancouver harbour. I refused tugs offered by the harbour master for reasons of personal pride and cost to the Navy.

"You are still a bit too fast", said Judd when we had a quarter mile to go. I did not like handling my ships as though they were egg shells and I wasn't going to get 'chicken' now.

"You are still too fast", said Judd quietly. I stopped the engines and let her coast toward the wharf for a bit, then I ordered 12 knots astern, I felt her vibrate properly and expected her to slow. She sailed right on. I ran the revs up to 20 knots. She kept right on going. I steered for the wharf to parallel it. I saw a concrete pillar at its end that was probably put there to stop wayward ships.

"Full Astern", I ordered. Composed captains never order "Full Astern" unless a disaster in imminent.

"I don't think she'll stop in time," I said to Judd. I

was calm but had a clear vision of our 30-foot-high steel-bow crumpling against the menacing concrete pillar. I envisioned great chunks of cement descending onto the foc's'cle. I imagined the headlines in tomorrow's newspaper, 'Cruiser Crumbles Concrete'.

"She might," said Judd.

"Half astern", I said it calmly down the voice pipe to the quartermaster. She was going to stop. I could keep on reducing the power. I wasn't going to pile her up. There would be no court marshal.

"Stop Port", I said. She was still going ahead at a few knots but she was going to stop. If I left the outer engine running that would swing her stem in. I had got away with it.

"Stop starboard". She was stopped. She was only a yard off the wharf and exactly parallel to it; she had not touched it. Not only that the bridge was exactly opposite the green flag a dockyard matey was holding to show me where we ought to be.

"I won't put you through that again," I said to Judd.

"I was wrong," he said, "You weren't going too fast." Brian Judd was a fine officer. When I was walking aft I met Lieut Cdr. Joe Prosser, my First Lieutenent, who had been on the foc's'cle and in charge of the berthing wires, "Sir," he said, "I have never seen it done better than that." I knew then that he had not yet talked to Judd!

In Vancouver we opened the ship to visitors; thousands came, and in spite of our protective measures managed to steal twenty telephones, handles off watertight doors, two dozen signal flags, and more. My Executive Officer, Commander Paddy Padmore, was aware that Vancouverites had an international reputation for thieving from warships, Canadian, American and British. Padddy had taken precautions, but they outsmarted him. By contrast, Nova Scotian ship-visitors steal nothing from anyone. Most odd. "It's the souvenir complex," explained the ship's doctor, Lt.Cdr Medhurst, "Rich people have it."

On a brighter note, I invited my mother, who lived in Vancouver, to have tea on board and to bring any friends. My father had died a year earlier and I wished he hadn't because he would have enjoyed seeing me driving such a ship. My mother arrived by chartered

On the bridge with Brian Judd, my navigator. We are entering Vancouver and passing under the Lions Gate suspension bridge.

bus with thirty ladies of her church group, "I had no idea so many would want to come," she explained, "So I hired a bus." She introduced me to her ladies as 'Bobby', which I didn't mind, but it did amuse the sailors - for some months. Mother wanted to see where I worked so I toured her around the bridge, showed her the instruments, and tried to satisfy her technical mind, "When I came on board I noticed armour-plate on the ship's side," she said, "How thick is it?"

Her church ladies, unlike Mabel, cared not a whit about the guns, radar, torpedoes and engines; they wanted to see the galleys, the pots, the tables, and where people ate. The ship's cooks, normally ignored by visitors, had a great time showing off the bread-making machine that cranked out a 1,000 loaves a day and soup-makers that held twenty gallons. A month later these ladies sent an embroidered sash to the ship; it said, *'Thank you Ontario for giving us a special day'.* I had it mounted in the ship's trophy case. I hoped I was doing well enough to meet my mothers expectations of long ago; she had always expected me to do well.

For the return trip to Esquimalt we embarked Britain's Imperial Defence College, the IDC, both staff and students. There were forty in the group, from Colonel on up. They were Air Vice Marshals, Admirals, Deputy Ministers, Ambassadors, from a

dozen different countries, and were led by the war-winning soldier, General, Lord Montgomery of Alamein, 'Monty'.

He wore a light-weight khaki uniform with red patches on the lapels, he was brisk and trim, gray at the temples, about five-eight and spoke quickly. A moment after I had greeted him at the gangway he said, "Will you let me on the bridge with you?" When we got to the bridge I sat him in my oak chair; it's polished arm-rests that went well with his uniform. As we passed under the great suspension bridge he watched the mast-top carefully; an optical illusion makes it certain there isn't enough room to get under. Monty was the president of the British Imperial Defence College, he was about to retire and I supposed his job was a going-away present from the British government. A year or so after this he wrote his memoirs, which were of great interest to me, "I wrote every word myself" he said proudly.

From my chair he scanned the scenery with binoculars, " I always wanted to be in the Navy so I could command a ship like this", he said. We were steaming into the west wind in the calm waters of the Georgia Strait, the snow covered mountains on Vancouver Island were ahead.

"Everyone on board just has to go where you take them," said the General," Not like the Army where they go where they damn well please, Eh."

I had chosen the route through the Active Pass, a channel between islands that required the ship to make a Z turn. I had done it several times before, and had often admired the B.C. ferry captains hugging the steep shore lines - to amuse the passengers and add zest to their own lives.

"Sir, you drive her through Active Pass", I said to the General. It was better to tell him he was going to do it than have a coy conversation. I showed him the chart; I had him do several practice turns in the open waters as we approached, I told him to use lots of rudder to get the feel of the ship. I ran the speed up to 24 knots. He seemed quite at ease; he told the quartermaster through the voice-pipe who he was and that "I'll need all the help you can give me." I had a feeling this was not the first time Monty had given orders to a helmsman through a voice-pipe.

The tidal current was with us, so the speed was about 28 knots. He conned her through perfectly, he had a big smile on his face as the ship straightened after the last 90 degree turn, "Best thing I've done for years." he said. In Esquimalt harbour I made a less heartstopping alongside than the Vancouver first try, I was rewarded with an approving grin from Brian Judd.

General Bernard Montgomery meets Gillie. This photo was taken in the Esquimalt dockyard . Admiral Pullen's son Willie, Jill's friend, is beside Stephanie. Monty was known to be a hit with children and he was with these.

Ontario was fully equipped for war, she had a full load of ammunition, 200 tons of it. Her propulsion system was in top condition, there were four boilers operating at 750 pounds pressure, four sets of turbines and reduction gears, drive shafts, glands, her propellers measured 12 feet across. Every piece of equipment required special skills; the 'auxiliary machinery' included steamturbine and diesel engines

that generated enough electricity to supply a good sized town. There were enough pumps to equip ten fire stations; the refrigerators stored a month's fresh food for 700 men. There were 250 phones, including the ones pinched in Vancouver, the radars reached out 80 miles. The crew were fully occupied in maintaining this welter of equipment, and in teaching the next generation how to do it.

"Our peacetime role is training entrepreneurs for their selfish personal benefit." I heard a chief petty officer say this, sourly, as he was issued yet another class of fresh-faced Canadian boys whose aim in life was to set up their own business the instant their recruitment term was up. "Maybe one of 'em will give you a job." his chum replied.

Ontario with the ammunition on board and all machinery working.

The Navy was a great technical training organization that did the country immense good. In later years the technology schools were organized by the provinces, but in the 1957 era the Navy, the Air Force and the Army, were producing hundreds of skilled people. Nowadays, with far fewer people in the services, not so many will result but still a significant number. On this same note, it was it was a poor joke that the real role of Venture was subsidized pilot-training for the commercial airlines! In any event dozens of 'Ventures' wound up flying the big planes. Ontario, although ready for war operations, had to train as many as possible, so we always had batches of trainees on board. We made a three-week trip along the West coast of B.C. with a class of 60 cadets from Royal Roads, 50 engineering apprentices, and 20 cooks. Our permanent crew took their annual leave to make way for the trainees and their instructors. Two of the civilian professors from Royal Roads, who had been there when I was its XO in 1945-47, came along for the tour," ... and to catch up on my reading."

On this trip we visited outports; Powell River, Naniamo, Prince Rupert and poked into deserted inlets along the west side of the Queen Charlottes. At this time not one person lived along their entire length. I personally located the site of a long-abandoned Haida settlement now called Ninstints. I looked for it deliberately, for days, I was interested in the Haida culture. I had been given clues by the Victoria museum staff as to where the ancient village had been. Searching along the shoreline from a ship's boat I found it.

I unearthed a woven cedar-box from the clamshell floor of a cave, a midden. In it were the bones of a baby. I found ancient totem poles concealed in a tangle of 300-foot rain-forest firs. I gave my information to the museum staff. Some time later one of our frigates towed two of these poles to Victoria for mounting outside the museum. That primeval Haida village is now a national park. We made another short training cruise, with three destroyers in company, to San Francisco, Long Beach/Los Angeles and San Diego. We did training exercises with the US Navy, firing *Vice Admiral Steuben, in command of the*

San Diego at battle practice targets and aircraft-towed *naval facilities visits the ship. I made a call on the Anti* sleeves. The destroyers did torpedo firings and *Submarine school that I had helped establish in 1942.* practised hunting submarines. I gave a speech *My picture was not on any wall!* at the request of the Canadian Trade Commissioner in each place. We had the ships open to visitors in each city. Hundreds of ex-Canadians came on board along with many Americans. The crew got a lot of invitations to happy events, like surfing and pool-siding. It came time to take my pet trainees, the Venture cadets, on their annual cruise. They were to get a full three months, not the three weeks the Royal Roads cadets were getting; nothing there had changed, not even the instructors.

Admiral Hughie Pullen wishes me well for the voyage. His young son Willie wanted to come but he was only eight.

We sailed for Hawaii with 723 on board. Of this number 104 were Venture cadets, 110 were junior sailors on their first voyage. There were 14 sea-cadets, ages 14-16, and there was one fellow age 12. He was Michael. Stephanie had agreed that it was probably more fun for him to come with me to the far reaches of the Pacific than to commute with her to Glen Lyon private school in his little grey suit and cap. Mike thought it was great idea. The timing of this cruise, and the ports of call, was related to three events. The Philippine Islands had just become a Republic and was no longer an American colony. We were to visit Manila to indicate Canada's support of that new country and to provide a backdrop for the newly established Canadian embassy. Singapore was in the process of splitting away from the recently created Republic of Malaysia and was going to establish its own republic. The Canadian Government approved of this political event and having a shiny warship visit was a tangible sign of support and future bonhomie.

The third, and less appealing, political event was the formal creation of the Republic of Indonesia. That area was in the process of breaking away from Dutch colonial rule. The Dutch had agreed to depart and their leaving was expected to generate a violent mess; there were many competing factions seeking to control the new country. There were Canadians in Jakarta and in the hinterland of a thousand islands; there was a Canadian embassy. Our timetable had been developed so we could be in Jakara just before the formal departure of the Dutch. If there was disorder we would intervene on behalf of our people as necessary. So our cruise to the Far East had purposes in addition to the training of the young. I invited my newspaper friend Stuart Keate to ride with us as far as Hawaii and he accepted This is the same Keate who helped me get Venture known two years earlier, and who had been to France with me on a dark night in 1944. The Frigates, Stettler and Jonquiere, were assigned to make the cruise with us. Each ship had 40 Venture cadets and 60 junior sailors on board. I was the senior officer responsible for the conduct of the cruise. So we were three ships and sailed with 945 onboard; we would be away for three months.

The Admiral and his staff had organized a 'war' exercise to be conducted as we returned to Canada. Ontario had the role of a new Soviet cruiser, Sverdlov; this innovative 20,000 ton ship was the first warship of any nation to be equipped with long-range rockets armed with nuclear warheads. At this time, 1957, the Soviets and our side were engaged in a highly dangerous contest of threatening each other with ultimate destruction, it was called the 'cold war' . Canada even went to the expense of digging huge

underground bunkers, one was near Ottawa (Carp), the other in Alberta (Suffield) to preserve something in the event of a nuclear exchange. The Ottawa one was tagged as the Diefenbunker when it was completed in the early 60's. The Suffield one is currently (2002) being sold as a tourist attraction! So in 1957 it was not that odd we should be conducting war-games on how not to get nuked by the Soviets.

Our Navy and Air Force and the US Navy based in the Puget Sound were to defend against a raid on the Pacific coast by the Sverdlov. It was to be ajoint international exercise, and it's control was to be in the hands of Admiral Pullen (Canada had the most forces assigned).

A briefing session had been held in the admirals offices; amongst those present were me and the captains of the two frigates. The Sverdlov' s mission was to destroy West Coast cities. Ontario was assigned the role of Sverdlov, and the exercise was to be conducted as we returned from the cruise, three months hence. The plan allotted a period of three days when Sverdlov could attack. She had to be within 200 miles (the range of her missiles) of Seattle, Tacoma, Vancouver and Victoria, to fire her eight rockets at those targets. In practice this meant Sverdlov would have to get within fifty miles of the western entrance of the Strait of Juan de Fuca. The defenders, the Canadian Navy destroyers, the US Navy destroyers and patrol aircraft, and the Canadian Air Force long-range Lancaster bombers, were to destroy Sverdlov before she destroyed the cities of the West Coast. Sverdlov was to be on her own; it was thought that such a mission would be conducted by a single ship, as it would be close to a suicide mission whether she fired the rockets or not. Against her would be eight destroyers and a total of thirty long-range aircraft equipped with torpedoes and bombs.

To me the scenario appeared to be a one-sided game where the defenders would wind up heroes and the Russians would wind up dead, hundreds of miles short of their objective. I was not invited to comment on the plan, which was reasonable as I was a Russian! I did however feel it my duty to be able to behave like a Russian so asked a question of Admiral Pullen.

"Sir, the captains of our warships are required to inform their command by radio once every 24 hours of their position, course and speed," I then said, "I request this requirement be waived for Ontario during this exercise?" The rule came from Naval Headquarters, presumably so they would know whether or not a ship had sunk, or defected to the enemy and the newspapers might find out first!

"Welland", said the Admiral, "You know perfectly well that I am not even going to ask HQ to waive that. So the answer is No."

"Sir, can an arrangement be made so that I don't have to tell your patrol planes and destroyers where I am, noting that I am the Russian enemy?"

Several of his staff officers got their heads together and in short order the Admiral told me that I would have to make the report each day, but that he would personally see to it that the position of the ship was not disclosed to any of the officers conducting the defence or taking part in the exercise. I didn't even protest. I would lose.

A Frigate

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Op-Eds

Canada's Support Ship Controversy

Commander (Ret'd) Roger Cyr, OMM, CD

Two new joint support ships for the navy are being built by the Seaspan shipyard and there is controversy regarding the type of ship that was selected. Namely, whether a converted ship being offered by another shipyard should have been chosen instead, which would have reduced the costs of the ships. Questions are being raised as to whether there should have been better options for naval support ships at lower costs. One option would have been to select a ship design off the shelf and simply use the design as is. Another would have been to convert an existing commercial ship and make it into a naval support ship as now proposed by Chantier Davie.

Generally, a joint support ship is a multi-role naval ship capable of launching and supporting "joint" amphibious operations. It also provides sealift, underway support, sea-basing and logistics capabilities for combined army and naval missions. Joint support ships have several common features to support the many multi-roles they can fulfill for both navies and armies. Below are some examples of these common features:

- For sealift: deck space is required for transport of heavy equipment and passenger space for military personnel.
- For underway support: ships need enough fuel storage tanks and dry storage for ammunition/food and other supplies for replenishing other ships while underway.
- For self-defense capabilities: it needs a combat management system, naval weapon systems and close-in weapon systems.
- For command: it needs space for mission coordination, a helicopter deck for transport to shore and other support facilities such as hospital spaces.

Furthermore, to fulfill the multi-role requirement a flexible modular design allows for configuration of temporary areas for different purposes as various missions would require.

The design for the Canadian navy support joint support ships being built by Seaspan is based on the German Berlin-class vessels. Three of these ships have already been built by Germany. The cost of the third one (Bonn) is assessed at 350 million Euros (roughly CDN$600 million). Canada acquired this design and modified it to meet the requirements of the Canadian navy. However, a proven design was selected, and it was intensely modified, resulting in a complete redesign. For instance, the original German design has a roll on-roll off (RO-RO) capability for carrying vehicles. The Canadian variant does not have that capability. Instead the Canadian ship will employ a modular pontoon system called a sea-to-shore connector which will allow for the transferring of material, including people, vehicles, and supplies ashore, or be modified to

create temporary jetties in locations that could not ordinarily support a ship.

The cost of the Canadian variant is estimated by the Parliamentary Budget Office at about $2 billion per ship, and that office questions the high costs, being three times the cost for the German model. Now is the Canadian version three times more capable than the German version? Are the capabilities similar and if so, why is there this huge cost differential?

Another option would have been to convert a commercial hull to fit Canadian requirements for joint support ships. As stated by the Parliamentary Budget Officer, Ottawa could buy two converted civilian vessels from Chantier Davie shipyard to serve as support ships for the navy for a fraction of the cost of building new ones. A report estimates that the price of buying the two converted container ships, the MV Asterix and the MV Obelix, from Chantier Davie would be around $1.4 billion, or $700 million per ship.

What about the capabilities of these two converted ships? Will these two converted ships meet the navy's requirements for joint support ships? The Asterix has been used by the navy as an interim replenishment ship for some time and has received glowing accolades. It is seen as a great ship that is providing essential supply services to the navy. However, does it have the capabilities of a joint support ship? Due to the civilian nature of her design, Asterix is limited in her ability to survive damage sustained in combat. The ship also lacks any installed self-defense weapons systems, although there are provisions should the need arise. These two issues prevent the ship at this time from being deployed to hazardous combat areas. The Asterix is fitted for, but not with, three Phalanx Close-in Weapon Systems.

The second vessel being offered, the Obelix is somewhat in a better position to meet the needed requirements, since conversion has not yet started, and many deficiencies found in the Asterix could be corrected in the Obelix. This ship, with its roll on-roll off capability would actually be Canada's only rolling freight carrier for the transportation of armored vehicles and other vehicles necessary for combat, humanitarian, and peacekeeping operations, and it would be a truly global platform capable of performing polar operations. However, it is said that the ship lacks self-defense capabilities, including a combat management system, and close-in weapon systems, such as Phalanx, but these could be incorporated in the conversion process. Yet the proposed conceptual drawings of the Obelix shows a 57mm gun, which is a true naval gun that is fitted in the existing Halifax class frigates.

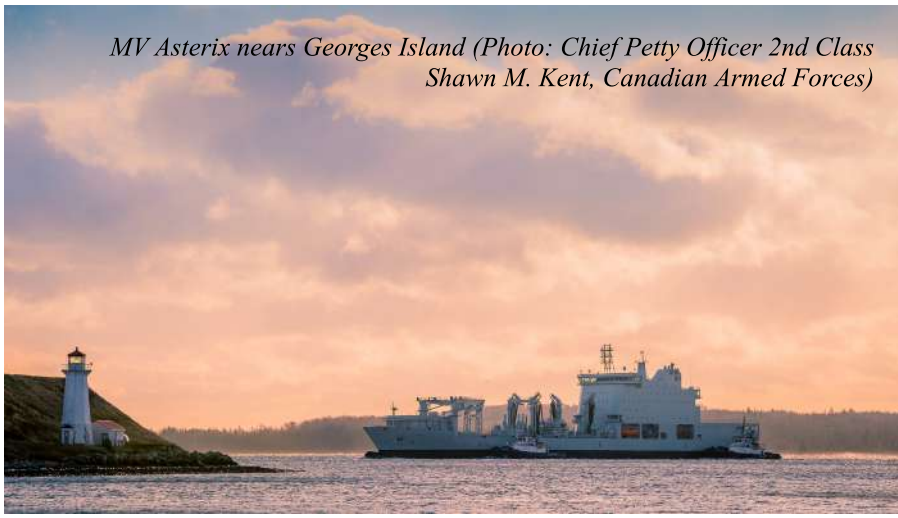
MV Asterix conducts a liquid Replenishment at Sea (RAS) with USS Thomas Hurdner during Operation NANOOK (Photo: Manuela Berger, Canadian Armed Forces)

The Berlin-class ships armament is shown as 4 systems of 27 mm MLG 27 autocannons, fully automatic naval guns. It is understood that the Phalanx Close-in Weapon Systems will be fitted instead in the Canadian version, which would make sense, since Phalanx is now fitted in the Halifax class frigates. In addition, the Berlin class lists Stinger surface-to-air missiles (MANPADS – Man Portable Air Defence System). These are carried on the shoulder of an individual, and it would obviously also be readily available for any ship.

Comparing the cost of the Davie support ships at $1.4 billion or $700 million per ship, with building the two new joint support ships at $4.1 billion, or $2 billion per ship. It would be obviously be more cost-effective to go with the converted ships. It would also have been more cost-effective to not dramatically change the design of the Berlin-class ship. The first of the modified Berlin-class is already under construction in Vancouver and slated for delivery in 2023, and 2025 for the second. The Canadian version of the Berlin-class is four times more costly than the original German version. What has made the cost so high, was it the design changes that were made; was it due to more capabilities being inserted into the ship or is it simply the cost of building ships in Canada?

Why does Canada take a proven off-the-shelf ship design, and dramatically alter to make it a new ship, with no significant increase capability, but with a dramatic increase in the costs? A list of the required capabilities could be found in the Canadian government's detailed 2006 release, which includes supply functions, medical care, repair facilities, self-defense, roll-on roll-off, lift-on lift-off helicopter operation, ice capabilities, deck space for vehicles. Why can Canada not first provide a detailed requirement and stick to it, and procure what best meets these requirements, at the lowest cost? Instead, the approach seems to be to take a design and then do a re-design to include all that is wished for, regardless of costs, and pay four times as much to achieve a marginal increase in capability, if any.

There is a contract in place with Seaspan to build two joint support ships and this must go ahead as contracted. As for the two Davie ships, Asterix has and is serving the navy well as an interim replenishment ship and it should continue to do so until the end of the Davie contract. However, there is likely no operational need for this ship after the two modified Berlin-class ships are delivered, and Canada just cannot afford the cost of keeping it in service given its limited capabilities. But it is quite a different matter for the Obelix. This ship has much more potential for conversion and will have unique capabilities that no other ship in the navy could provide, such as the RO-RO component, and it should be procured. It is truly as defined by Davie, a Global support ship, a concept ship which would address current and future, domestic and global, threats and challenges, enabling Canada to assume a greater role on the world stage and truly project the government's foreign policies. As for future naval projects, Canada should follow the basic rules for any project management; first clearly define the requirements, second produce detailed specifications, third select a product and allow for minor alterations to suit the end need, and finally issue a contract that is competitive and cost-effective.



MV Asterix nears Georges Island (Photo: Chief Petty Officer 2nd Class Shawn M. Kent, Canadian Armed Forces)

A Mix of Fleet Assets that Reflect Canada's Capability

Roger Cyr, OMM, CD

Canada is not a major power and does not have the military might, the sea power, or the resources to impose its will on the world stage. As such, it should tailor its fleet assets to be readily available to contribute to any domestic challenges and make a noteworthy contribution to world stability and peace, in conjunction with its allies.

The likelihood of a symmetrical war between developed sovereign states, especially a traditional sea battle should no longer be raison d'être of the navy, instead it should be focused on humanitarian missions, and diplomatic projection, and be equipped with capital ships that are purpose built for these roles.Canada's defence policy advocates the need for flexibility to respond to a changing world, to have agile forces, capable of making tangible contributions at home and around the world.

The navy must be ready and able to deliver across a spectrum of operations, from domestic humanitarian assistance and disaster response to counterterrorism and peace support operations, to limited combat operations. To achieve this, it requires targeted and strategic investment in capabilities and equipment that can be used in domestic and international operations, in differing scenarios.

Since Canada is a maritime nation, fronting on three oceans, it must have a navy that is well equipped for a range of missions, on all its coasts. The opening of the Arctic ocean's sea routes also requires that there be ice capable capital ships as part of any fleet mix. Given the rapidly changing domestic and world situations, there should be serious planning and discussion on what the navy's roles should be, and decisions made on which assets would be best suited for this defined purpose.

Since the 1950s, every government has adopted a defence policy for Canada that basically repeats the same lines of the previous policies; these being home defence, continental defence in cooperation with the United States, and military engagement beyond the North American continent in support of alliances. It is still the same with the current policy except that a new slogan was introduced; *Strong, Secure and Engaged*. The latest policy also details that there should be fifteen surface combatants, two joint support ships, and five or six arctic patrol ships. However, is this the optimal fleet mix given the economic reality in Canada?

The current Halifax class frigates have served the navy since 1992. The frigates are to some extent multi-role, but with emphasis on anti-submarine warfare since this was the primary mission of the navy at the time the ships were designed. The Canadian Surface Combatant program was launched to replace the Halifax class frigates. The replacement vessels will be somewhat larger than the existing Halifax class, and presumably provide an enhanced capability. The Type 26 model was selected, and detailed design is currently underway, with both the total number of ships and their capability being dependent on the budget that is allocated to the project. These new frigates will be the fifteen surface combatants the defence policy now calls for.

The mix of fleet assets has not really evolved since the 50s, and its basis is for a warfighter navy, providing limited combat support to our allies in isolated campaigns. It seems that no thought was given to selecting a fleet mix that corresponds with today's reality, which would require that the navy be equipped for varying purposes, and not just for a combat role. There needs to be an evolution of the maritime defence policy and consideration of a mix of assets that is more line with today's needs, first domestically and second globally. It should be kept in mind that the Halifax class frigates have never been involved in combat missions since they were built. The new fleet should reflect the primary non-warfighter roles that will likely face the navy for the next thirty years.

The fleet composition should reflect today's geopolitical situation and be equipped with ships that will serve Canada in all scenarios that today's world requires. The fleet should include warfighter ships, such as the frigates, whose role is to engage an enemy. Beyond these combat ships there should be multi-purpose ships whose main role on the home front would be to be involved in humanitarian and disaster relief operations. They would also provide Canada with the ships to allow it to conduct soft

power projection. Soft power projection does not involve the active use of military forces in combat. Assets for power projection serve dual uses, as the deployment of various countries' militaries illustrated during humanitarian responses to the earthquakes in New Zealand and Haiti. The ability of a state to project its forces into an area may serve as an effective diplomatic lever, influencing the decision-making process and acting as a potential deterrent. Soft power projection includes:

- Securing sea lanes of communication, by the protection of shipping lanes from attack by hostile states or irregular threats.
- Non-combatant evacuation operations, by the evacuation of citizens or friendly third country civilians from a foreign country when they are endangered by war or civil unrest.
- Humanitarian response, using military forces abroad to assist in the aftermath of a natural disaster.
- Peacekeeping, by military operations designed to support diplomatic efforts to reach a long-term political settlement to an on-going dispute.

The six arctic patrol ships that the policy calls for are not capable of providing this function, simply because they are not armed, are too slow, are not icebreakers, and do not have the needed capacity. What is needed is a fleet that should be composed of a mix of warfighters such the type 26 frigates, and of all-purpose armed warships such as the Chantier Davie global logistic ice breaking warship proposal. The proposed ship is fitted with naval weapon systems, including a 57mm gun and SeaRam Surface to Air missiles, and hence could deploy for combat missions and soft power projection as needed. Canada's new frigates now being designed, and the proposed all-purpose warships, would achieve a composite mix of capital ships that would be in line with Canada's capacity and capability and be suited for domestic and global threats and challenges.

Given Canada's limited financial resources, the navy should be equipped with assets that will first provide for domestic needs in times of emergencies and disasters, and secondly that will assume a greater role on the world stage. The fleet composition should be tailored to the country's capability, and truly project the government's foreign policies.

HMCS Shawanigan during Operation Projection (Photo: Corporal Yongku Kang, Canadian Armed Forces)

From the Branches

Standing in front of the WWII U-boat periscope located in the Crow's Nest Officer's Club in St. John's, NL, NLNAC President Don Peckham (L) and Secretary Ed Williams (C) present an NAC Endowment Fund Grant of $2,000.00 to Jon Summers (R), President of the Crow's Nest Club to support the refurbishment of the iconic periscope which was salvaged from U190 at the end of WWII. NLNAC and the Crow's Nest offer sincere thanks to NAC and the Endowment Fund for this support.

Book Reviews

Decima Flottiglia MAS - The Best Commandos Of The Second World War

By Walter S. Zapotoczny Jr.
(Fonthill Media, 2017)

Reviewed by Fraser McKee

Most readers of wartime naval history will be familiar with the very mediocre performance of the Italian Navy's considerable pre-war force. While their ships, from battleships to destroyers and submarines were largely first class, the Service was constrained by two major factors: If any of them, particularly the major units, were much damaged, Italy did not have the infrastructure or background to competently and quickly repair them. Thus maintenance of the force was a vital component in strategy. The Swordfish raid on Taranto emphasized this problem. Secondly, in a misguided alliance with Germany in the spring of 1940 Mussolini was convinced by her new ally the war, already moving in Germany's favor with its advance to the French Atlantic coast, would be a short one – a matter of some months only.

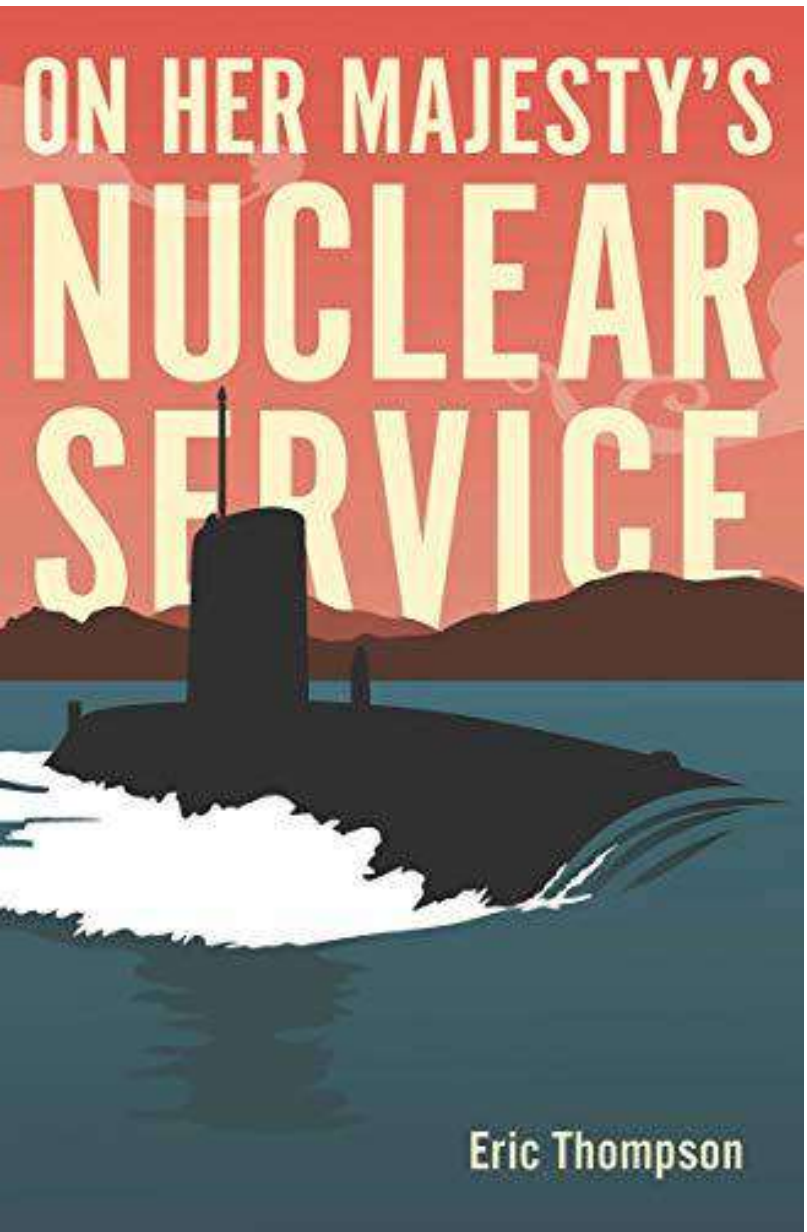
They were soon disabused of this latter assumption. So although they cautiously fought locally with some successes, and ADML 'ABC' Cunningham in Alexandria felt the weight of his losses in the losing campaign in Greece, Crete and otherwise, on the whole the only continuing success the Italian Navy really enjoyed is the subject of this very readable small book on their *Decima Foittiglia MAS* - 10th Torpedo-boat Flotilla. At only 121 text pages, the author, an historian with the U.S. Army, covers in those brief pages the all too successful, and some less so, operations of the Italian's frogmen, manned torpedoes and expendable explosive motorboats.

With the use of titled paragraphs, he covers the development of these devices which in fact were to be copied, at least in the RN, with similar swimmers and their X-Craft used for attacks on Tirpitz and Japanese cruisers with equal success. Within a few pages of

First War examples, he describes how Italian motor torpedoboats (MAS) had successfully attacked and sunk Austrian battleships and more at Pola early in the 1914-18 struggle. In fact, within this early chapter Italy's inventive leadership in such naval warfare is amply illustrated, which they maintained right through to their surrender in the fall of 1943. This is amply proven by their sinking, albeit in shallow water, two of 'ABC's' battleships inside Alexandria harbor, and their attacks from a secret merchant ship in the Spanish harbor just across from Gibraltar (14 ships sunk or severely damaged). Not always successful, an explosive motorboat and torpedo attack on beleaguered Malta in July 1941 was only foiled at the last second by alert defensive radar detection of their approach. Well ahead of any Allied developments, the *Regia Marina Italiana* also modified four destroyers, a sloop and seven submarines to launch these annoyingly successful boats, swimmers with limpet mines or even manned torpedoes, all briefly described in the text or in useful four appendixes.

As a reference, these four give a simple but valuable addition, listing specific ships sunk or badly damaged (290,000 grt); the supporting destroyers and submarines; a 30 page reference list of every single explosive boat of vehicle; a list of awards to their valiant sailor participants, including a sentence or two of the subsequent lives of survivors. While not exhaustive, for most readers the volume provides an excellent summary of this naval venture. One RN participant in MTB attacks complained that even by 1942 he had not only not as good craft to fight with, but there was no doctrine published to help him. ('We Fought Them In Gunboats' by Robert Hitchens; Robert Joseph, 1944 – and others).

A most useful and interesting addition to one's library.



On Her Majesty's Nuclear Service

By Eric Thompson (MBE, CMDRE, RN)
(Casemate Publishers, Oxford & Philadelphia. 2020)

Reviewed by Fraser McKee

While this is an autobiography, of an RN submarine Engineer officer, it is a very well written, unusually entertaining and informative biography. It will prove of interest, and very familiar, to any RCN submariner, or those interested in that occupation, for several reasons. Firstly it is a rare look at S/M history from the engineering perspective rather than by a seaman watchkeeper or C.O. Also, joining at Dartmouth in 1961, he was in time to serve in various late-war 'A' boats and then 'O's, just as many Canadians did in preparation for us acquiring our four O-boats - such as OBERON, now preserved on Lake Erie at Port Burwell. While short sightedness prevented Thompson from being a seaman officer, his career was a quite fascinating series of appointments which he describes swiftly and with much humor. Many of his escapades as a cadet, Mid, and junior, plus as a Divisional Officer, will be familiar to anyone who passed that way. After the usual brief

stint in a destroyer, he went to Manadon, the engineers' school, to qualify in electrics, already with plans to serve in submarines.

Throughout the book it follows his career in and out of boats, and on a staff research appointment as a rather badly needed Tigerfish torpedo assessment and redesign specialist (at his request), which had been failing to hit or explode when they did hit, as many torpedo variants had done. Yet it was the SSN's primary weapon!

He connects his view of world history related to his occupations in increasingly modernized S/M, moving into nuclear boats, finally into stealth SSBN's. Thompson assesses related world events that affected that life. From the Cuban missile crisis, the U.S. passage of the nuclear S/M Nautilus through the Arctic via the North Pole, the Russian testing of a nuclear bomb, then longer range missiles, in their North. Development of increasingly important world events. How these impacted improved nuclear S/M design requirements, particularly for silent running, British and American, as they moved into joint nuclear-tipped missiles designs. In his assessment, to ensure peace as the only option from assured mutual destruction (which continues to this day)

Although only marginally involved with the missiles and explosive warheads to be carried by the faster, quieter and more competent S/M in which he served, his view from the engineroom, in fact with all the 'outside' mechanical ship's equipment, is unique. Also familiar to anyone who served 'on the other end of the voicepipe.' There were non-nuclear equipment failures, always risking the boats, thus the lives of the crew. There were runs ashore and hoary old submarine tales and rescue missions. Silently tracking Russian similar boats, or watching their coming and going. As his boat's chief Electrical or Engineering Officer, at ADML Hyman Rickover's insistence, became as vital as the boats' C.O.

To his surprise Thompson was promoted through Captain(E) to eventually command of the S/M nuclear home base for RN and USN boats at Faslane, Scotland. He married and as usual moved all too frequently around the country, to give a nice picture of the man, as well as life in submarines and in staff positions related thereto.

He has puckish sense of humor, and writes with literary skill (rather in the style of the naval novels of John Winton), so the tale is easy and pleasant reading. My only fault, as a reviewer, is a lack of any index, and enigmatic chapter headings such as 'Walter Mitty,' 'Trials and Tribulations,' and 'The Director of Naval Lost Property.' But they serve as an inducement to read further. Much recommended.

Rhymes of the R.N.C.V.R. and Other Verses

By W.A. Innis
(Bibliolife, 2019)

Reviewed by Fraser McKee

This is one for those with an affection for the historically different connection to the old Canadian Navy. In fact to the 1914-1923 R.N.C.V.R. and poetry! Pretty unique! I saw a reference to the poems in an article, a search on Google connect-ed me to Bibliolife in Charleston. This outfit is republishing long abandoned "Old books that deserve a new life," to quote them.

This slim 64 page volume of poems first published in 1919 by W.A. Innis, who I gather was a member of the R.N.C.V.R. and an amateur poet; put some of his own experiences into verse, like the following. It helps in reading some to know the old terms, such as his reference to CD ships – Canadian 'drifters' employed on local patrols and minesweeping – or TR, the new-built trawlers, Commander G, Barrington Street in Halifax, or Charlotte Street in Sydney, but in poetry it's not very vital. Innis may not be the Tennyson of naval poets, but they ring true of those days when the Canadian Navy consisted of two elderly cruisers and a host of little patrol ships, manned by Mates and Skippers, stokers and bunting tossers. The poems' titles are enough to draw attention to the times: 'A Niobe Sailor's Yarn; CD's Overseas; The Dockyard Way; Salvos,' and so on.

Highly recommended for the clear and entertaining picture of the old Navy!

"It is now 'Guns crew, fall in! fall out! Change rounds, and as you were!'

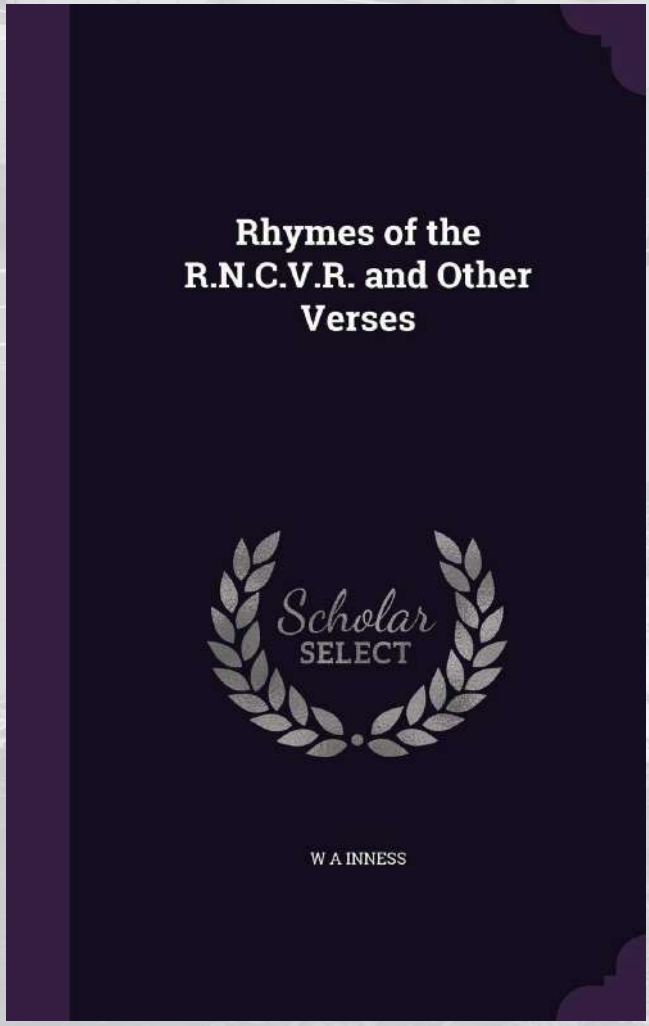
At the same time explaining to the Mate,

'See! that shot has fallen over, you must get the next one down!

Just learn to work the bracket by the rate…."

BRONCHOS

We come from the West, where the grain grows best
Where the coyote howls by night,
Scared if we stayed that we would be made
To go to the Front and fight.
So how to find some place for a blind,
It puzzled both Pa and Ma,
Until someone said, "Why haven't you read
Of the R.N.C.V.R.?"
So without a slip, to the depot ship
We travelled day and night,
And it was grand on the deck to stand
And be taught just how to fight!
To knot and splice was not so nice,
For Oh! that smell of tar!
It made me sick, but still we stick
To the R.N.C.V.R.
Out on the deep we learn to sweep
For mines that lie below,
How they find the way, on such a day
In the fog, we do not know!
We do not fail to seek the rail
And look for depths afar –
There are times you'd hate to be a Mate
In the R.N.C.V.R.
Of course each Mate must navigate,
Must box the compass too!
Rules of the road, the flags in code,
To know just what to do
When he gets afloat in his own boat
And passes o'er the bar –
It's an awful strain on a youthful brain
In the R.N.C.V.R.
When on the street we chance to meet
A skipper passing by,
We don't salute the old galoot,
But hold our heads up high!
The 'Tally Ho!' is the place we go
By taxi or by car.
Come, drink with me a pot of tea
To the R.N.C.V.R.



Last Post

Compiled by Pat D.C. Barnhouse | Starshell Obituaries Editor

Kindly forward all obituaries to Pat at:
535 Kenwood Avenue, Ottawa, ON K2A 0L7
or by email: pat.barnhouse@sympatico.ca

NAC MEMBERS

Capt Russel Arthur BUTLER, CD*, RCN(Ret'd)

NAC-O, 92 in Ottawa 10/12/20. Jn'd RCN as OS at *York* 22/09/50 and srv'd, inter alia, *Naden, Shearwater* and *Magnificent*. Commissioned as A/S/Lt(S) 20/05/57, fll'd by *Hochrlaga* 10/57. Prom S/Lt(S) 20/05/58 thence *Cornwallis* 12/58 and *Lauzon* 06/59. Prom Lt 20/02/60 fll'd by *Hunter* 03/61, *Nootka* 03/63 and *Gatineau* 04/64. Prom LCdr 08/03/66 thence CDLS(L) and CFB Ottawa 02/69. Prom Cdr 03/07/72 fll'd by NDHQ 07/72. Prom Capt 01/01/78 whilst in ADM((FIN CS). Ret'd 08/06/82. Civ career as public servant and in the private sector. (*Citizen*)

LCdr Thomas FORBES, CD, RCN(Ret'd)**

NAC-O, 83 in Ottawa 18/09/20. Jn'd as OS 22/02/55, srv'd, inter alia, *Bonaventure, Cape Scott, Provider* and *Protecteur* and prom PO! 05/67. CFR'd as S/Lt 19/04/68, prom Lt 04/71 thence 202 CFTSD 07/71, *Iroquois* 07/71 and CFFS Halifax 01/75. Prom LCdr 05/75 fll'd by CFB Halifax 08/75, MARCOM HQ 12/76, *Algonquin* 08/77, NEU(A) 08/79 and NDHQ (DGMEPM) 07/83. Ret'd 12/08/87. Later civ employment in NDHQ and volunteer in church and sports activities. (*Citizen*)

LCdr David William JOHN, CD*, RCN(Ret'd)

NAC-O, 79 in Ottawa 10/09/20. Jn'd as Cdt at CMR 03/09/59. Prom S/Lt 05/64 thence *Chippawa* (Flt Trg with RCAF) 28/09/64. Prom Lt 07/66 fll'd by Montreal Olympics in '67, 415 Maritime Patrol Sqn 09/69, NDHQ (VCDS Staff) 08/73, UofO 08/75, MARPAC HQ 05/76, RRMC 08/77 and AdeC to GG 05/80. Prom LCdr 04/83. Twice equerry to Prince Charles. Ret'd 08/08/85. Subsequent career at Government House (Honours System). Editor Vols 5-9 Salty Dips. Silver Medallion 2011. (*Citizen*)

George Beverley LAMONT, CD

NOABC, 86 in Cambridge, ON 15/03/20. Srv'd in RCA as Air Observation Officer and later as naval bandmaster. Civ career as mathematics and music teacher. Bronze Medallion 2004. (BW)

LCdr Charles Douglas MAGINLEY, CD, RCN(Ret'd)

NSNAC, 91 in Mahone Bay, NS. Trained at *HMS*

Conway and srv'd Merchant Marine. Jn'd RCN(SSA) as A/Lt 16/09/55 fll'd by *Wallaceburg* 10/55. Prom RCN Lt 10/01/58 thence *Fortune* 08/58, *St Croix* 10/60, *Bonaventure* 06/62, *Stadacona* (Direction Officer Trg.) 06/64, *Bonaventure* and *Fundy* 07/70. Prom LCdr 01/09/71 fll'd by CFFS Esquimalt 04/72 and MARPAC HQ 02/74. Ret'd 13/10/76. Civ career as teacher at Canadian Coast Guard College. Author of three books on the Coast Guard. (*Chronicle Herald*)

LCdr Alexander Ian MAIR, RCN(R)(Ret'd)

NOABC, 89 in Vancouver 02/07/20. Jn'd *Discovery* as UNTD Cdt 02/01/52, prom RCN(R) S/Lt 01/09/54 and Lt 01/09/56. To Ret'd List in '59 and back to Active List in '62 as Lt(S) at *Discovery*. Later prom LCdr. Professional career in investment companies. (WC)

Garth Carlyle MILLER

Winnipeg Br., 90 in Winnipeg 19/09/20. Cadet Officer with J.R.K. Millen NLCC. Served term as branch president. Bronze medallion 2000. (CT)

Capt Keith Gordon NESBIT, CD, RCN(Ret'd)**

NAC-O, 79 in Virginia Beach, VA 12/11/20. Jn'd *Venture* as Cdt 11/09/60. Prom A/S/Lt 01/09/62 fll'd by *Stadacona* 11/62 and *Stettler* 06/63. Prom S/Lt 01/09/63 thence *Qu'Appelle* 12/64. Prom Lt 16/06/67 fll'd by *Ojibwa* 08/69 and CANSUBRON ONE 05/72. Prom LCdr 01/11/72 thence *Ojibwa* 11/72, *Onondaga* 08/73, CFMWC 09/74, CANSUBRON ONE 12/74, CDLS(L) (S/M Perisher) 02/75, *Onondaga* (i/c) 07/75, *Okanagan* (i/c) 11/75 and CFCSC 08/77. Prom Cdr 10/07/78 fll'd by NDHQ 07/78, MARCOM HQ 07/83, CDR CANSUBRON ONE 07/83, and MARCOM HQ 12/84. Prom Capt 23/06/87 thence ADM(POL) 06/87, CFCSC 07/90 and SACLANT HQ 07/93. Ret'd 26/08/96. Second career as jazz pianist/organist. (RD)

S/Lt Leonard Angus SIMPSON, RCN(R)(Ret'd)

Winnipeg Br., 81 in Pinawa, MB 20/11/20. Jn'd *Discovery* as UNTD Cdt 02/01/58 and prom S/Lt 01/07/60. Ret'd in '63. Career nuclear scientist with AECL. Mayor Pinawa for eight years. (WC)

LCdr John Lloyd WOODBURY, CD*, RCN(Rety'd)

NAC-O, 90 in Ottawa 02/11/20. Jn'd *Nonsuch* as UNTD Cdt 31/01/50 and prom Mid 10/01/52. Prom RCN(R) A/S/Lt 01/09/52 thence *Sault Ste Marie* 12/52 (CND). Prom RCN(R) S/Lt 09/52 fll'd by *James Bay* (CND). Tsf'd to RCN (SSA) as Lt (sen. 01/09/54). Selected for RCN as Lt (sen. 14/01/56) thence *Naden* 05/57, *Beacon Hill* (UNTD Sea Trg O.) 05/58, *Jonquiere* 07/58, *Margaree* 08/61, *Stadacona* (Ops Cse.) 08/62, *Terra Nova* 08/63 and *Stadacona* 09/65. Prom LCdr 31/05/66 fll'd by *Chaudiere* (i/c) 11/67, CDLS(W) 02/69 and CFHQ 07/72. Also attended NATO Defense College. Rei'd 13/08/75. Civ Career with DOT/ Coast Guard. Branch President 1994-96; Bronze ('88) and Silver ('99) Medallions. (*Citizen*).

OTHERS

CPO2 Freeman Ernest ABBOTT, CD*, RCN(Ret'd)

74 in Colchester, NS 23/10/20. Jn'd RCN as OS 27/05/65, prom LS 05/69, MS 04/72. PO2 10/77, PO1 08/82 and CPO2 07/86. Srv'd *Provider, Mackenzie, Yukon, Oriole*, CFB Esquimalt, CFSS Halifax, CFFS Esquimalt, TRAINPAC HQ and Venture NOTC. Ret'd 17/10/90. (SR, *Chronicle Herald*)

Lt David Lomer Dudley BEARD, QC, RCN(R)(Ret'd)

Former Toronto Br., 90 in Craigleith, ON 10/10/20. Jn'd UNTD as Cdt at *York* 02/01/51, prom RCN(R) S/Lt 01/09/53 and Lt 01/09/55. To Ret'd List in '59. (WC)

Cdr Mervyn Dee CAMERON, CD, RCN(Ret'd)**

Former NAC-O, 88 in Ottawa 19/11/20. Jn'd *Unicorn* as UNTD Cdt 15/01/50 and prom RCN(R) A/S/Lt 01/07/52. Tsf'd to RCN(SSA) as S/Lt (sen. 01/07/52). Selected for permanent commission in '55, prom Lt 14/06/56, LCdr 14/06/64 and Cdr 13/06/79. Srv'd *Comox, Stadacona* (JOLTC), *Haida, Sault Ste Marie, Cayuga, Cornwallis* (Long 'C' Cse.), *Crescent, Cap de la Madeleine*, CCC5 Staff, JMWS, SACLANT HQ (two tours), CFSC (Course 6), *Annapolis* (XO), CFS Aldergrove (i/c), MARCM HQ and NDHQ. Ret'd 04/02/88. Chair Salty Dips Committee Vols 5-9. Bronze (1999), Silver (2001) and Gold (2010) Medallions. (*Citizen*)

PO2 Robert George Arthur DAVIDSON, CD*, RCN(Ret'd)

82 in Windsor, NS 09/11/20. Jn'd RCN as OS 06/04/56, prom LS 03/59, MS 10/71 and PO2 08/75. Srv'd, inter alia, *Nipigon, Iroquois*, CFS Saint-Jean, CFS Mill Cove and CFFS Halifax. Ret'd 05/12/79. (SR, *Chronicle Herald*)

PO1 Kenneth Gerard DAWE, CD, RCN(Ret'd)**

73 in Dartmouth, NS 26/11/20. (SR, *Chronicle Herald*)

Cdr[LCol(PLT)] Brian Donald EADY, CD, RCN(Ret'd)

In Halifax 13/01/21. Jn'd RCN as Cdt at *Star* (for UWO) 01/09/63, prom A/S/Lt in '67, S/Lt same date, Lt 01/05/68, Maj(PLT) in '79 and LCol(PLT) in '87. Srv'd *Bonaventure, Shearwater*, VS-880, CFB Shearwater, HS-443, CDLS(W) (USAF Staff College, fll'd by USN Exchange [LAMPS MkIII Project]), CDLS(W) (US Naval War College), HS-443 (i/c) and CDLS(L) (Exchange on Staff RAF Staff College). Ret'd circa '93. (PB, Canada's Naval Aviators)

CPO2 Robert H. FROWLEY, CD*, RCN(Ret'd)

89 in High River, AB 11/10/20. Jn'd RCN as OS 31/10/51, prom LS 08/54, PO2 08/56, PO1 06/62 and CPO2 06/76. Srv'd, inter alia, *Athabaskan*, CFFS Halifax and MARCOM HQ. Ret'd 21/07.82. (SR, *Chronicle Herald*)

Lt Brian Alan GALLANT, RCN

76 in Ottawa 18/10/20. Jn'd as ROTP Cdt 01/09/62 at *Scotian*. Prom S/Lt 05/66 and Lt 05/69. Srv'd, inter alia, CFHQ. Rls'd 26/07/74. (*Citizen*)

Lt William Alexander GILCHRIST, RCN(R)(Ret'd)

87 in Sydney, NS 08/01/21. Jn'd *Scotian* as UNTD Cdt 02/01/54 and prom RCN(R) S/Lt 01/07/56. Prom Lt on tsfr to Ret'd List in '58. (WC)

PO2(SGT) Frederick Ernest GROUT, CD*, RCN(Ret'd)

74 in Dartmouth, NS 04/09/20. Jn'd RCN 06/03/63, prom LS 10/66, MCPL 12/78 and SGT 10/83. Srv'd *Cornwallis, Shearwater*, VU-33, *Algonquin, Huron, Skeena*, HI-406 and *Protecteur*. Ret'd 03/04/87. (SR, *Chronicle Herald*)

S/Lt(MED) Edward John HAMBLEY, RCN(R)(Ret'd)

84 in Peterborough, ON 23/10/20. Jn'd *York* as UNTD Cdt 02/01/55, re-designated Cdt(MED) in '57 and prom S/Lt(MED) 01/07/57. To Ret'd List in '58. (WC)

PO1 William Alexander Charles LAYAND, CD*, RCN(Ret'd)

79 in Lower Sackville, NS 29/08/20.Jn'd as OS 08/03/62, prom LS 10/66, PO2 11/73 and PO1 03/79. Srv'd, inter alia, *Kootenay, Qu'Appelle, Fraser, Assiniboine*, FMG(A), MARCOM HQ, CFFS(Halifax), *Nipigon* and CFRC(Halifax). Ret'd 09/04/94. (SR, *Chronicle Herald*)

CPO2(Ret'd) Joseph Emeric LEMIEUX, CD*

70 in Mineville, NS 09/20. Jn'd as AB 23/02/67, prom LS 05/71, MS 02/76, PO2 02/78, PO1 06/83 and CPO2 08/89. Srv'd *St Laurent*, CFB Goose Bay, FMG(A), FDU(A), CFFS Halifax, SRU(A), *Athabaskan* and TRUMP Detachment Halifax. Ret'd 01/03/95. (SR, *Chronicle Herald*)

CPO Murray Allen LONG, CD*. RCN(Ret'd)

89 in Kentville, NS 21/12/20. Jn'd RCN in '48 and srv'd, inter alia, in Korea. Ret'd in '78. (SR, *Chronicle Herald*)

A/Surg S/Lt Alfred Howard LOWER, RCN(R)

92 IN Thunder Bay 20/10/20. Jn'd UNTD as Surg Cdt 26/01/49 at *Cataraqui* and prom A/Surg S/Lt 06/02/51. Rls'd 20/10/51. (WC)

PO2(Ret'd) Sherman William MacLEAN, CD.**

63 in New Glasgow, NS 24/08/20. Jn'd as OS 02/80, prom AB 11/82, LS 12/83, MS 01/91 and PO2 07/93. Srv'd CFB Halifax, *Nipigon, Cormorant*, CFFS Halifax, *Annapolis, Terra Nova*, Reserve Training Unit (Halifax), 5th Maritime Ops Group HQ, *Preserver*, CF Recruiting Centre Halifax and Naval Fleet School (Atlantic). Ret'd 03/03/11. (SR, *Chronicle Herald*)

Cdr Earle Vernon MARGETTS, CD, RCN(Ret'd)

94 in Oakville, ON 10/12/20. Jn'd *Chippawa* as UNTD OS (Officer Candidate) 09/45. Jn'd RCN at *Chippawa* as A/S/Lt(S) 06/02/48, prom S/Lt(S)

same date, A/Lt(S) 01/12/49, Lt(S) 01/02/49, LCdr(S) 01/02/57 and Cdr 01/01/65. Srv'd *Iroquois, Antigonish, Kootenay*, *Niagara* (USN Supply Corps School, Bayonne, NJ), PNO Quebec, *Bytown*, *Stadacona* (HMC Dkyd) and CFHQ. Ret'd in 1969. (RAD, CAHD)

PO1(WO) Marvin Earl MITCHELL, CD, RCN(Ret'd)**

85 in Halifax 20/08/20. Jn'd as OS11/01/54, prom LS 03/58, PO2 07/67 and WO 05/81. Srv'd *Magnificent, Bonaventure, Shearwater, Provider, Nipigon, Athabaskan*, VU-33, CFB Cornwallis and CFB Greenwood. Ret'd 13/04/89. (SR, *Chronicle Herald*)

A/S/Lt(L) Earnest Alyn MITCHNER, RCN(R)(Ret'd)

83 in Vancouver 09/20. Jn'd *Unicorn* as UNTD Cdt 02/01/55 and prom RCN(R) A/S/Lt(L) 01/07/57. To Ret'd List in '58. One of 12 sea cadets who joined *Magnificent* for 1953 Coronation cruise. (WC)

S/Lt Herman Paul MUENZER, RCN

83 IN Halifax 20/11/20. Jn'd *Nonsuch* 02/01/58 as UNTD Cdt(E), tsf'd to RCN as Cdt 01/09/58 and prom S/Lt 01/09/60. Srv'd *Bytown* (for Flt Trg), HU-21 and HS-50. Rls'd in '63. (WC)

Cdr Robert George MUSTARD, CD*, RCN(Ret'd)

Former NAC-O, 86 in Ottawa17/11/20. Jn'd RCN as OS 01/03/51 and srv'd, inter alia, *Cornwallis, Shearwater* and *Naden*. Prom CTP Cdt 01/09/58 attch'd *Discovery* (UBC). Prom S/Lt 09/63, Lt 08/65, LCdr 05/72 and Cdr 08/80. Srv'd *St Laurent, Saskatchewan, St Croix,* NDHQ, CDLS(L) (RN Exchange Portland) and PMO DELEX. Ret'd 01/09/81. As a civilian, worked in industry on MCDV Project. (JAT, *Citizen*)

CPO2 Charles Edward POOLE, CD*, RCN(Ret'd)

83 in Lower Truro, NS 26/11/20. Jn'd in '56 and srv'd, inter alia, *Bonaventure, Preserver* and *Nipigon*. Ret'd in '80. (SR, *Chronicle Herald*)

Lt(S) John Campbell RESTON, RCN(R)(Ret'd)

89 in Newmarket, ON 06/12/20**.** Jn'd *Discovery* as UNTD Cdt 02/01/51. Prom RCN(R) A/S/Lt(S) 01/09/53, S/Lt(S) same date and Lt(S) 10/08/56. To Ret'd List in '60. (WC)

Lt Gordon George RIDDELL, RCNVR(Ret'd)

99 in Ottawa 07/10/20. Jn'd as Prob S/Lt in '43, prom S/Lt 12/04/43 and Lt 12/04/44. Srv'd *Kings, Anticosti* and *Humberstone*. Rls'd in '45. (*Citizen*)

Cdr Trevor Cole SHUCKBURGH, CD, RCN(Ret'd)**

98 in Victoria 10/10/20. Jn'd RCN as Boy Seaman 15/07/40, CFR'd as A/CD GNR 23/10/50, prom Lt 31/03/52, LCdr 31/03/60 and Cdr 01/01/65. Srv'd *Naden, Prince Henry, Teme, Niobe* (RNC Greenwich), *Magnificent, Ontario, Ste Therese* (XO), *Ottawa* (XO), *Bonaventure*

(XO), *Sussexvale* (i/c), *Columbia* (i/c) and Cdr 4th Canadian Training Squadron. Ret'd 17/03/72. (WC, *times Colonist*)

Lt(MN) Elinor Royce (nee CORNWELL) STEGEN, RCN

92 in Dartmouth, NS 01/11/20. Jn'd as A/S/Lt(MN) 22/09/52, prom S/Lt(MN) same date and Lt(MN) 09/54. Srv'd *Stadacona* and *Naden*. Rls'd 11/55. (SR, *Chronicle Herald*)

S/Lt Harold Frederick Gardner STEVENS, QC, RCN(R)(Ret'd)

89 in Mader's Cove, NS 30/11/20. Jn'd *Scotian* as UNTD Cdt 16/02/50 and prom RCN(R) A/S/Lt 01/09/52. To Ret'd List 09/53 as S/Lt. (WC)

Lt Peter Busby WAITE, OC, RCNVR(Ret'd)

98 in Halifax 24/08/20. Jn'd as Prob S/Lt in '42, prom S/Lt 04/01/43 and Lt 04/01/44. Srv'd *Kings, Burlington, Cornwallis* and *Shelburne*. Tsf'd to Ret'd List in '45. (SR, *Chronicle Herald*).

CPO2(Ret'd) Richard John McBride WALLACE, CD*63 in Halifax 14/08/20. Jn'd as OS 27/05/76, prom AB 11/78, LS 01/83, MS 01/85, PO2 08/87, PO1 11/93 and CPO2 04/01. Srv'd CF Recruit School Cornwallis, CFFS Halifax, *Assiniboine*, CFB Halifax, *Saguenay, Algonquin, Halifax*, FMF Cape Scott, *Montreal* and Maritime Forces Atlantic HQ. Ret'd 30/09/05. (SR, *Chronicle Herald*)

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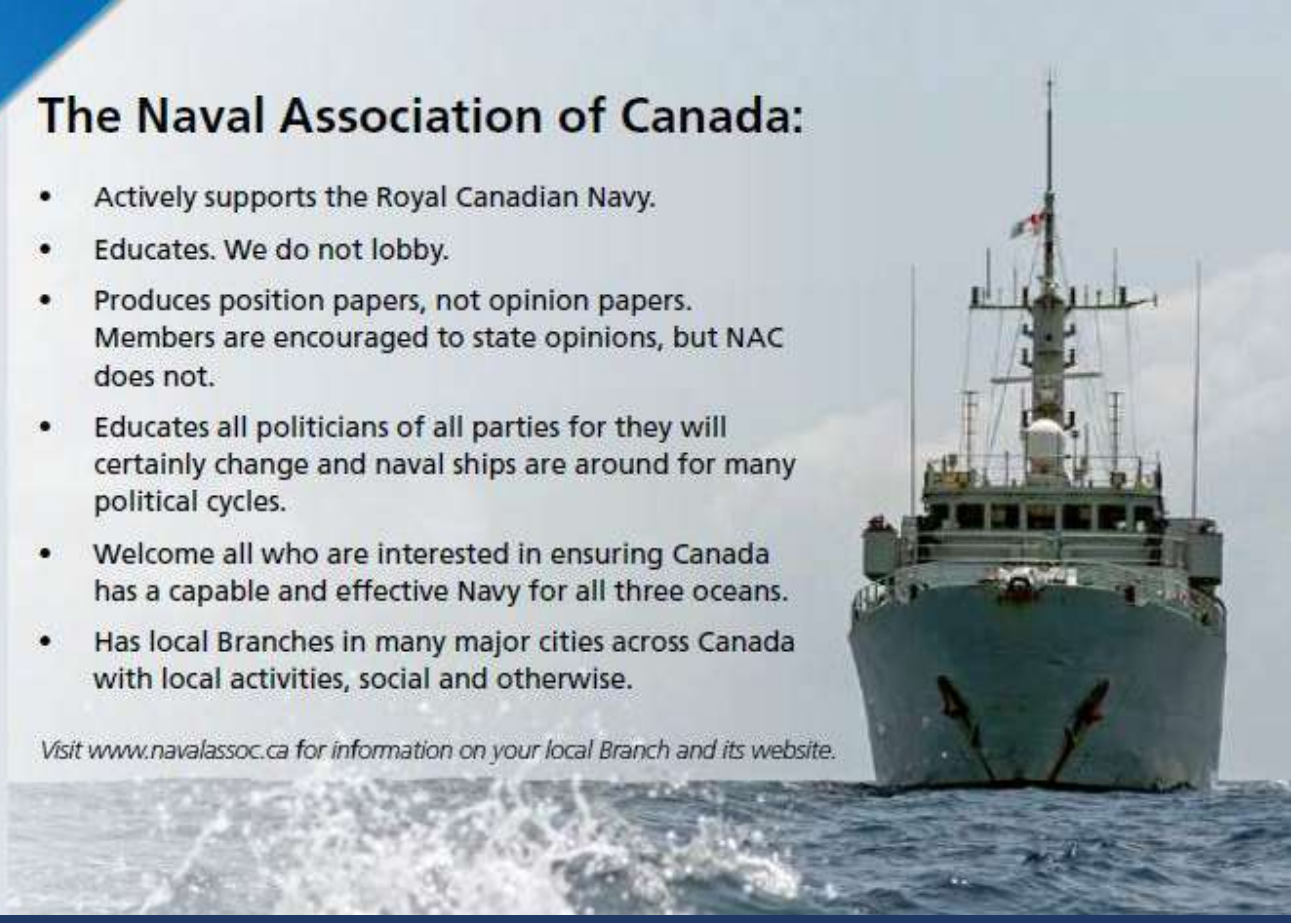

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Northern Lights shimmer above HMCS Glace Bay during Operation NANOOK 2020 on August 18, 2020. (Photo: David Veldman, Canadian Armed Forces Photos, Combatcam)